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No. 98

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ELECTRIC POWER

POWER AND ELECTRIFICATION MINISTER DISCUSSES USE OF FUEL, POWER

Moscow EKONOMICHESKOYE SOTRUDNICHESTVO STRAN-CHLENOV SEV in Russian No 6, 1981 pp 16-20

/Article by Petr Neporozhniy, minister of Power and Electrification and chairman of the Standing Committee of CEMA on Cooperation in the Field of Electric Power: "The Rational and More Efficient Use of Fuel and Power Resources"7

/Text7 Raising the efficiency of the national economy of the CEMA member nations to a large degree depends upon the rational use of raw material and energy resources.

In 1980 the CEMA member nations produced nearly 2.3 billion tons of conventional fuel of the primary fuel and power resources, one half of which was used to produce electric power and low-potential heat for heating, hot water and certain industrial needs.

The enormous scale of the consumption of organic fuel and the rather high rates in the growth of power consumption in the near future have given the CEMA member nations an urgent task: to achieve an improvement in the fuel and power balances, primarily by reducing the amount of petroleum used as a fuel and by making more economical use of power.

The growth in costs for prospecting and increasing the extraction of the "black gold", the need to more rationally use available supplies, the possibility of introducing into the national economy the use of atomic power on an industrial scale, the availability of important deposits of low-grade coal and lignites, and technical progress in the use of non-traditional power sources - all of these factors help to improve the fuel and power complex and make it possible to augment the complex with new, efficient resources, which cannot on their own be considered as sources of energy.

This leads to the creation of the conditions for reducing the direct consumption of scarce, high quality types of fuel in technological processes and expands the framework for the electrification of industry on the basis of electric technology. An essentially new large-scale task for organizing the national economy's power supply comes into view by taking into consideration the changes that are actually taking place within the fuel and power complex.

The effectiveness of solving this problem depends upon the joint efforts of each CEMA member nation and their collective actions.

At the 35th meeting of the CEMA Session it was emphasized that there is a need to improve the work that is being directed at meeting the requirements of the CEMA nations for fuel and power resources and the furnishing of the appropriate sectors with modern power-efficient equipment.

The overall concept of conserving fuel and power resources in the CEMA nations at the present-day stage includes the following trends:

1. Improving the structure of producing electricity, which has the goal of substituting and reducing the consumption of scarce types of organic fuel by:

-the forced development of the atomic power industry and the more complete use of the hydropower potential;

-the use of the combined generation of electricity and heat;

-the adoption of power sources that can be renewed;

-the development of efficient methods to liquify and gasify solid fuels.

2. The joint adoption of the achievements of scientific-technical progress, aimed at reducing the relative expenditures of heat, fuel and electric power. The following measures are planned:

-the use of technological layouts and processes that are less power-intensive, and the creation of waste-free technology;

-the replacement and modernization of outdated equipment, the intensification of technological processes, increasing the amount of time between equipment repair and raising the load coefficient, and the conservation of power-intensive materials;

3. Progressive territorial and macro-economic shifts, including:

-the construction of new large power-intensive enterprises predominantly near sources of power and raw materials;

-the reconfiguration of the machine building and construction complexes in order to switch to the creation of new supplements of machines, new architectural and lay-out solutions, which are characterized by relatively less levels of electric power consumption.

We all know that today the electric power industry is the largest consumer of fuel in the national economy of the CEMA member nations. For this reason, reducing the expenditure of organic fuel for the production of electricity is making a substantial contribution to the conservation of available resources.

The development of atomic power and hydroelectric power is becoming increasingly important. A General Agreement for cooperation in the future development of unified electric power systems for the CEMA nations during the period up to the year 1990 stipulates that the installed rated capacity at atomic electric power stations be raised to 35.95 GW (excluding the USSR), including: Bulgaria - to 4.76 GW, the GDR to 9.59, Poland to 4.88, Romania to 3.44, and Czechoslovakia to 8.52 GW. In Cuba prior to 1990 it is planned to construct and put into operation two power units of 440 MW each.

The realization of the program for the development of atomic electric power stations will make it possible in 1990 to reduce the annual expenditure of organic fuel (coal, mazut, natural gas) by approximately 200 million tons of conventional fuel as compared with 1980.

We recall that the percentage of hydroelectric power in the total balance of electricity produced in the CEMA nations in 1980 was: Romania - 17 percent; USSR - 14 percent; Bulgaria - 9.2 percent; Czechoslovakia - 5.4 percent; Poland - 1.5 percent; Hungary - .6 percent; and in the GDR - .2 percent.

Hydroelectric power stations have made it possible to reduce the requirement for organic fuel by ensuring the more uniform operating mode of the thermal electric power stations; they have also reduced the need of the power systems for special shunting electric power stations, which consume expensive gas and mazut fuel. The generation of electric power by the USSR's hydroelectric power stations in 1980 provided a fuel savings amounting to 15 percent of the total consumption at thermal electric power stations for the same year.

In connection with increasing the percentage of non-shunting AES's a special role in the future will go to the water storage electric power stations (GAES). The substances of this development is that the existing and proposed electric power load schedules require the introduction of significant shunting capacities. In contrast to the other kinds of electric power stations the GAES's are at the same time both generating sources and regulatory-consumers. This equalizes the night-time dip in the electric power load schedule.

The efficient use of available resources in supplying the national economy is to a large extent brought about by the creation of the unified electric power system (OES) of the CEMA nations. The realization of this measure will make it possible to reduce the total capacity of the electric power stations through the use of the fact that the load maximum is different in the individual power systems, thereby making it possible to optimize their operating modes. As the result of realizing the intersystem effect in accordance with the general plan for the future development of the OES prior to 1990, the economy in capacity in 1990 can be approximately 4,500 MW.

Today the basic trends in raising the efficiency of the use fuel at an TES include: improving the structure of the generating capacities, the further development of central heating, the modernization and rebuilding of power units, and also increasing the technical level of operation and ensuring that the equipment is operating at the level of established norms.

Improving the structure of the production of electric power is achieved by putting into operation and assimilating economical power units with a rated capacity of 800 to 1,200 MW, by disassembling equipment that is worn out and outdated, and by taking steps to decrease the use of inefficient installations at thermal electric power stations.

At newly introduced power units an operational readiness of not less than 80 tO 82 percent must be achieved in the first year of operation; and in the second year of operation these figures must be 83 to 85 percent.

At electric power stations with turbines at a live steam pressure of 90 kgf/cm2 and below reducing the production of electric power during the condensation cycle will be accomplished by disassembling and putting into reserve during the summer in order to conserve the equipment.

At power units and electric power stations with lateral connections it is necessary to adopt a full range of measures for increasing the manueverability of equipment and for expanding the regulating range. In connection with this great importance is attached to the extensive adoption on power units of a rated capacity of 300 and 800 MW operating modes with partial loads on a sliding pressure in the steam and water tract. The operation of a gas and mazut power unit with a rated capacity of 300 MW in such a mode at loads of 70 percent and below as compared with operation at nominal steam parameters ensures a reduction of the relative fuel expenditure of 5 to 6 grams per kilowatt hour.

Raising the economy of electric power stations by an average of 1.5 percent can be achieved by modernizing the flow-through portion of the condensation turbines with a rated capacity of 150 to 300 MW of the first exhausts.

Generalizing the experience of operating power units and research on the metal of the steam pipes has shown that it is possible to raise the temperature of the steam of the intermediate heating in some of the boilers of the power units with a rated capacity of 150 to 300 MW from 545 to 565 degrees C. As a result, the relative expenditure of fuel on these units will be reduced by 1 to 1.5 grams per kilowatt-hour.

In order to increase the efficiency of the boilers and to prevent the sulfuric acid corrosion of the air preheaters and gas conduits it is necessary to more extensively adopt a method of burning mazut with the least excess air. Switching one power unit with a rated capacity of 300 MW to such an operating mode provides a savings in fuel of 1,500 tons per year.

Significant reserves for raising the efficiency of the vacuum systems of turbines are to be found in the adoption of progressive methods for cleaning the condensors using a water solution of low-molecular organic acids and units for cleaning the spongy elastic balls.

One of the basic sources for conserving organic fuel is the further development of central heating. In the USSR, for example, nearly 52 percent of the nation's consumption of heat came from sources of central heating (TETs and large boilers) in 1980. The level of centralized heating in cities reached 60 percent. Through central heating and the centralization of the heating supply in 1980 nearly 12 million tons of conventional fuel were conserved as compared with 1975.

In the next ten-year period among the key tasks are the further centralization of heating from TETs in conjunction with the optimal dimensions of constructing large boilers.

According to estimates of specialists, increasing the percentage of heat generation in cities and city-like settlements from centralized heating sources from 60 to 80 percent will increase the efficiency of using fuel that is expended for heating supply needs by 30 percent. This will be achieved by eliminating thousands of inefficient small boilers.

Raising the efficiency of the use fuel expended for heating can be achieved also through the use of new kinds of building enclosures which have improved thermotechnical characteristics and by automating the heating systems and using individual thermostat devices.

At existing TETs it is planned to modernize several turbines and to switch to operation with counter pressure or with the use of condensors for the heating of untreated or supply-line water.

In order to conserve fuel through the combined generation of electricity and heat it is necessary to accomplish a program of centralized heating modernization of the condensation units with a rated capacity of 150 to 300 MW. At Soviet electric power stations up until the present 325 medium and high parameter turbines with a total rated capacity of 13.5 KW have been rebuilt. This has provided an annual savings of 1.8 million tons of conventional fuel.

Great savings can be obtained by reducing losses of electricity during transmission. Measures aimed at this and at providing standard voltage levels in the electrical networks of the power systems are broken down into two groups.

The first group includes measures not requiring additional capital investments. Here we are speaking about optimizing the use of available reactive capacity of generators and compensating devices (KU) and current distribution in dissimilar circuits through the use of booster transformers and also doing away with an unfavorable current distribution in nets with different voltage by sectioning, etc.

The second group includes measures requiring additional capital investments and the development of nets. This includes the construction of additional power transmission lines, the replacement of overloaded lines, and the installation of additional transformers; rigging the net with the means of transverse and lengthwise regulation; and raising the degree of compensation of the reactive loads by the installation of additional compensating devices.

In recent years a great deal of attention has been devoted to the new addition sources of energy, particularly those sources that can be renewed.

Work is now underway on systems for the solar heating of hot water, heating and air conditioning in private homes and public buildings; research is being performed on the use of solar energy in industrial and agricultural endeavors and for the desalinization of water, etc.

In the years 1976 through 1980 the CEMA member nations developed and adopted technologies for the production of solar elements made of poly- and monocrystal silicon (its manufacture was organized in Hungary, Romania and the USSR), thermal solar energy storage facilities (in Bulgaria with an efficiency of up to 60 percent, in Romania with a cooling agent temperature of 55 degrees C and a productivity of 3.6 kilowatt-hours/ m2, and in the USSR 60 degrees and 3.5 kilowatt-hours/ m2, respectively).

In the near future one can anticipate the construction of solar electric power stations (SES) on a thermodynamic cycle with a system of concentration of the tower type. In the USSR an experimental SES with a rated capacity of 5 MW will be put into operation in 1985. A larger experimental-industrial SES with a rated capacity of 200 MW is now being developed. The annual output of electricity of one such power station will be .5 to .6 billion kilowatt-hours and the savings will be as much as 200,000 tons of conventional fuel.

In accordance with the decisions of the 35th meeting of the Session of CEMA it is considered expedient to develop and deepen unilateral and bilateral cooperation on both the problem of large SES's and solar heating supply.

The CEMA nations must create large systems for geothermal heating based upon efficient methods of extracting thermal waters and economical systems for using heat, an experimental geothermal TES of a new type with an underground circulation system for lifting deep thermal energy and means for protecting equipment from corrosion and salt deposits in order to make use of geothermal energy.

In the USSR through the use of geothermal energy nearly 500,000 tons of conventional fuel are being conserved each year. There are 300,000 people making use of geothermal heating. And 45 hectares of hothouses make use of thermal water. In the current five-year plan while doubling the total amount of geothermal energy that is being used it is planned to develop and assimilate new technology, which by the year 2000 will make it possible to bring the annual savings of fuel to 15 to 20 million tons of conventional fuel. In particular, plans have been made to construct the first section of the Mutnovskaya geothermal TES in Kamchatka with a rated capacity of 50 MW and experimental-industrial power stations of 10 MW each in Stavropol'skiy Kray, Dagestan and Zakarpat'ye. It is planned to adopt a return pumping of the spent water into the stratum in order to restore supplies and protect the environment.

To raise the extent of the use of geothermal energy it is necessary to do more work in the CEMA nations on a joint basis; the goal to be the creation of a specific piece of equipment or a technology. Thus, it is expedient to develop a technology for the return pumping into the stratum and to undertake a set of measures for the creation of underground circulating systems.

Work is underway on using the energy of the wind both to supply electricity to isolated consumers and for the creation of powerful wind electric power stations. Wind-power units have been developed with wheels of 6, 12 and 18 meters. Units are being produced in small batches to lift water in pastures and farms, oasis irrigation, and the electrification of private homes and facilities. It is possible to increase the capacity of wind-power units for isolated consumers in the near future to 30 KW.

The percentage of renewable sources of energy in the incoming portion of the CEMA nations' fuel and power balance will increase in the future. However, a significant impact from their use cannot be seen earlier than 10 to 15 years from now. For this reason increasing the efficiency of the use of organic fuel, hydro- and atomic power remains the basic direction for conservation in the production of electricity on the near term.

Industry is the primary consumer of power resources. According to estimates of Soviet scientists, the carrying out of measures for the conservation of energy in industry requires capital investments of from 30 to 80 rubles (an average of 60 rubles) per ton of conventional fuel. At the same time capital investments for the extraction and transport of one ton of conventional fuel considering outlays for supporting the extraction in the years 1980 through 1985, according to preliminary data, will be two to three times greater. For this reason the adoption of technological processes that are less power-intensive and the creation of waste-free technologies and equipment, and the use of recycled power resources as before remain critical trends for scientific-technical progress, which provide savings of fuel and power resources in industry.

Thus, in the chemical industry the adoption of technological units for the production of ammonia with a rated capacity of 600 and 1,360 tons per 24-hour period is making it possible to reduce the relative consumption of electricity by 3.3-fold; the assimilation of large tonnage power technological units in the production of methanol - 2.5-fold, nitric acid - 10-fold, and ethylene and divinyl by 10-fold and 3- 4-fold respectively. Enlarging the per-unit capacities and adopting more efficient equipment make it possible to decrease the relative expenditure of electricity in the production of phosphorus by 15 percent, chlorine and caustic soda by 7 percent.

In ferrous metallurgy fuel savings must be achieved by improving the technology of smelting and heating metal, increasing the furnace loads, decreasing downtimes, introducing new continuous steel pouring units, using recuperators for heating and thermic furnaces and improved burners, and also improving the thermal insulation of furnaces. In the blast furnace production it is essential to create and assimilate furnaces that have a large volume capacity. Among the other measures one can name raising the temperature of the blast of air and gas pressure under the furnace mouth, reducing the deviations of the iron content in the melting stock and smelting of fuel-intensive foundry pig iron, switching the blast air blowers of an outdated design to electrodrives in the set with the adoption of gas compressorless turbines, the use of oxygen and natural gas, and putting an end to the production of blast ferroalloys. Reducing the relative expenditures of power for the production of steel will be achieved through the reconstruction of open hearth furnaces to double bath furnaces; the intensification of open hearth smelting, the introduction of powerful arc furnaces (steel smelting and ferroalloy), the construction of substations of deep insertions, the adoption of new and modernization of existing equipment, and also the growth in the capacities of continuous steel pouring units. The substitution of scarce types of fuel in ferrous metallurgy will be promoted by the use of electrotechnology in the production of steel based upon the development of processes for the direct restoration of iron by expanding the amount of electrosteel smelting production and also the use of electroheating in the production of pipes and the drying of insulation coverings.

In nonferrous metallurgy the adoption of equipment sets for the autogenous smelting of copper-nickel sulfide concentrates is making it possible to conserve from 75 to 78 percent, and the oxygen-jet smelting in the production of copper 27 percent of the power. In the production of lead and copper-zinc a reduction in the relative expenditures of fuel by 35 to 57 percent is achieved by oxygen suspension /kivtsetnaya/ smelting. The relative expenditures of fuel are reduced by 10 and 18 percent respectively when enriching the blower with oxygen in the furnaces and heating the air jet to 400 degrees C. In the production of aluminum it is planned to reduce the relative expenditures of electricity by 10 to 15 percent by making use of electrolyzers with burnt anodes. Decreasing the relative expenditure of electricity by more than 50 percent is achieved by the introduction of autogenous smelting of compper-nickel raw material in a continuous action unit. Diaphragm-free electrolyzers will make it possible to decrease the relative expenditure of electricity in the production of magnesium by 8 to 10 percent, and closed ore-thermal furnaces along with optimal smelting modes in these furnaces - by 5 to 7 percent.

As the result of further improving and adopting semi-conductor equipment there will be a 3- to 4-fold reduction in the losses of power for conversion; and also the relative expenditures of electricity will be reduced. In spite of the large amount of electricity available in the overall balance of power utilization, there are real opportunities to further reduce the amount of organic fuel being used in the processes of smelting copper, nickel and other metals. Electrofurnaces are being used to a greater extent for smelting in place of the shaft and reflecting furnaces, which at present account for 15 - 20 and 40 - 50 percent of all production, respectively. In this same direction the oxygen suspension and oxygen jet smelting will continue to be developed, as will the kivtsetnaya process for the comprehensive processing of copper and lead-zinc sulfide concentrates, etc.

A large reserve for conserving fuel in the CEMA member nations are the secondary (recycled) power resources (VER). The actual extent of the use of thermal VER at present is approximately 40 percent; the possible fuel savings from the use of VER is more than 30 million tons of conventional fuel. The degree of the use of combustible VER is approaching 90 percent and corresponds to the possible savings of more than 6.5 million tons of conventional fuel.

Raising the efficiency of using VER is connected with the solution of such scientific-technical problems as the development and adoption of systems for the utilization of the heat of liquid slags, solid and liquid products, aggressive and dust-filled gas flows, the development of power storage devices for units that operate on a cyclic basis. All of these are VER sources and for increasing the parameters of the generated power carrier and working reliability of the equipment being used, the development of efficient systems for the use of low-potential VER. These include absorption-refrigeration, freon power units and thermal pumps for power technological systems (drying, evaporation); an important role is played by the development of diagrams for supplying enterprises with power by fully considering the use of VER.

An important method for increasing the power efficiency of motor transport is dieselization. Diesel engines make it possible to reduce the expenditure of fuel as compared with gasoline engines by 30 to 50 percent. This has a decisive impact on improving the fuel balance in the transportation sector, particularly in agriculture.

The successful solution of the problem of raising the efficiency of the use of fuel and power depends to a large extent upon expanding the cooperation of the CEMA member nations in this area. First, because the task of conserving power is facing all nations. Secondly, since the conservation of energy encompasses everything within the national economies, measures for intensifying this effort are becoming an important component part of all invested, scientific-technical and social programs, which are being accomplished both on a national and local level, including right on down to the individual enterprises. Thirdly, the same problems in different nations are often solved by various methods. However, many approaches and methods are of a universal nature and there can be no justification for a non-coordinated search and adoption in present-day conditions. They reduce the efficiency of the functioning of the power industry. In each of the nations valuable experience has been accumulated, which almost without change can be used in other nations.

At present the further deepening and improvement of foreign economic ties in the area of the conservation and raising the efficiency of the use of energy within the CEMA framework is one of the basic trends for socialist economic integration.

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ELECTRIC POWER

PETROS'YANTS DISCUSSES CEMA ROLE IN ATOMIC POWER

Moscow EKONOMICHESKOYE SOTRUDNICHESTVO STRAN-CHLENOV SEV in Russian No 6, 1981 pp 21-24

/Article by Andranik Petros'yants, chairman of the USSR State Committee for Utilization of Atomic Energy and chairman of the CEMA Standing Commission on Cooperation in the Use of Atomic Energy for Peaceful Purposes: "The Efficient Use of Atomic Energy is an Important Source for the Development of the Economies of the CEMA Member-Nations"7

/Text7 The realization of the Comprehensive Program has underscored the correctness of the coordinated plan, which was developed by the communist and workers' parties, to deepen and improve mutual cooperation in the development of socialist economic integration. The program also points out the vitality of the basic principles, goals, forms and methods of the work of CEMA.

This conclusion, which was reached at the 35th meeting of the CEMA Session, fully relates to such an important sector as the use of atomic energy for peaceful purposes.

Everyone knows that the Soviet Union has been a pioneer in the creation of the atomic power industry. In 27 years this sector has come a long way in the USSR. Today these power stations are in operation: the Leningradskaya AES with a rated capacity of 4000 MW is one of the largest atomic power stations in Europe and in the entire world; the Novovoronezhskaya AES with five power units and a total rated capacity of 2500 MW; the Chernobyl'skaya AES with a rated capacity of 3000 MW; the Kurskaya AES with a rated capacity of 2000 MW; an AES on the Kola Peninsula; an AES in Armenia; the Beloyarskaya AES with three power units, including a 600 MW fast breeder reactor; the Bilibinskaya AES in Siberia; the Shevchenkovskaya AES with a fast breeder reactor on the shore of the Caspian Sea; and others.

Construction continues and is still underway at the Chernobyl'skaya, Kurskaya, Smolenskaya, Yuzhno-Ukrainskaya, Rostovskaya, Odesskaya, Ignalinskaya, Bashkirskaya, Balakovskaya and other AES's.

Atomic electric power stations are firmly ensconced in the power industries of several other CEMA nations as well. In the GDR at present two AES's are functioning. One of them is located on the shoreline of the Baltic Sea - the AES imeni Bruno Loishner, consisting of four power units with VVER-440 reactors with a total rated capacity of 1760 MW. The construction of the power station is still in progress.

In Bulgaria the "Kozloduy" AES has been functioning for several years. This station has three water-cooled reactors with a total capacity of 1320 MW. In Czechoslovakia an AES is operating in Yaslovska Bogunitsa (Western Slovakia) with a rated capacity of 880 MW. Work is now in progress on the construction of the second section of the electric power station.

In Romania they are working on the first AES with a reactor that uses natural uranium with a heavy-water moderator. In Hungary construction is in progress on the first power unit of the "Paksh" AES.

Even today it would be difficult to overevaluate the contribution of AES's to the economy of the CEMA member-nations. In some of these nations the contribution amounts to 20 to 25 percent of the total output of electricity. Moreover, the coefficient of the use of capacity at these power stations is significantly greater than at the ordinary power stations which burn organic fuel; and the cost of one kilowatt-hour of electricity is less. This opens up important prospects for the atomic power industry, making it a substantial factor in the solution of such a complex problem as the energy problem in today's world.

An important role in all of this is to be played by the construction during the 1981 to 1990 time frame of AES's with a total capacity of 37 million KW in the European CEMA member-nations and Cuba; the USSR is to provide technical assistance in this work.

The atomic power industry is faced with significant tasks in the area of central heating.

To clarify what I am saying we shall recall that at present natural energy resources are being used in the world in approximately this manner: nearly 25 percent are being used to obtain electricity; 20 percent is used for transportation; nearly 20 percent is directed toward obtaining high-potential heat for production needs; and more than 35 percent is for heating and obtaining so-called low-potential heat.

The AES's are expected to free for central heating purposes a significant portion of the primary energy or to conserve a large amount of organic fuels. And today there are quite a few examples of this.

The first industrial atomic heat and electric power plant (ATETs) is in the USSR - the Bilibinskaya power station on the Chukotka. At the Beloyarskaya AES in addition to the production of electricity a part of the heat is used for the settlement's heating supply, in which it is located. The Leningradskaya AES also produces a certain amount of low-potential heat. The Chernobyl'skaya AES besides producing electricity "separates" heat for supplying heat to the settlement of Pripyat'. The settlement of Kurchatov is heated by the Kurskaya AES.

The large industrial Odesskaya TETs will produce both electricity and heat for the city. In the cities of Voronezh and Gor'kiy atomic boilers, or, as they are called, atomic heating supply plants (AST), are being built. These experimental-industrial AST's have water cooled reactors. These projects are to be put into operation in the second half of the 11th Five-Year Plan. Following their start-up and subsequent assimilation they will become the prototype for atomic heating supply plants in all CEMA member-nations.

In order to build an AST near large cities and even within the city limits it is necessary to accumulate experience in operating them; only after this can we proceed to the extensive construction of such power stations in places where they are needed. Estimates attest to the fact that the AST is a very economical and promising source of heating and that within a very short period of time they will occupy an important place in the overall system of supplying heat to the cities of the CEMA nations.

It is indicative that in the creation of a heating supply system using atomic energy the Soviet Union is far ahead of all other nations in the world.

The extensive use of atomic energy today in many other sectors of the national economy is apparent, particularly in an entire set of industrial technologies as well as in medicine and agriculture, to say nothing of science and scientific research.

The use of ionized radiations and radioactive isotopes is in many cases having a revolutionary impact upon the conducting of technological processes.

Thus, in determining the thermodynamic functions in metallurgy, in studying the kinetics of reactions and processes in the course of producing steel castings, and in establishing the mechanism for separating admixtures during the hardening of steel and alloys extensive use is made of radioactive isotopes. With the use of isotopes the motion of blended materials and gases in metallurgical furances is determined. And the processes of crystallization are studied and the causes which reduce the quality of metal are established.

Radioactive isotopes are the active assistants for monitoring the wear of the refractory lining of blast and open hearth and detecting the content of phosphorus and sulfur in the slags of open hearth production.

Today multichannel radioisotope tracing leveling gauges have been created for the noncontact measuring of the blend level in blast furnaces, an automatic signaling system which allows the loading of the furnace when blend level of a given program has been achieved.

The development of metallurgy requires an increase in the speed of rolling and reducing tolerances in the sizes of the sheet metal being rolled. For this purpose measuring systems are used which are based upon the use of radioactive nuclides - noncontact beta- and gamma-thickness gauges.

For the extensive adoption of the continuous steel pouring it is very important to maintain a constant level of liquid metal in the crystallizer. Toward this end an important role is played by radioisotope automatic liquid metal level regulators.

One other important field for the use of atomic energy is the chemical industry. Radioisotope equipment functioning in the chemical industry helps to measure and monitor the level of friable and liquid materials, to analyze liquid and gaseous mediums, and to determine the content of components of production output and monitor the thickness of the walls of technological equipment and pipelines on an operational basis.

With the assistance of gamma-relay instruments the automatic loading of an aggressive liquid into hoppers is accomplished. And in the event of an emergency situation of the liquid this system switches on a sound and light signalling device.

Atomic energy has led to the discovery of a new field in science and technology - radiation chemistry. New processes have been discovered and the theory of primary elementary processes has been developed. The mechanisms for the formation and decomposition of free radicals in the process of irradiation and radiolysis of water solutions; the theory of the transfer of energy along molecular chains; the theory and mechanism of ion-molecular, radical, and radical-ion reactions; the kinetics of radiation-inductive chain reactions with direct and branched chains; and others have been developed. Soviet scientists are responsible for many original processes in the field of applied radiation chemistry. Radiation-vulcanized rubber articles made of polydymethilsiloxane and polymethavinylsiloxane rubber retain the physical and mechanical properties at a temperature of 300 degrees C for a 30 to 40 day period, while ordinary rubber can withstand a temperature of 300 degrees C for only 24 hours.

Standard cable polyethylene at a temperature of 120 degrees C retains its properties for only a few dozen hours. At the same time a thermostable radiated polyethylene at a temperature of 160 degrees C retains its properties for more than 10,000 hours. At a temperature of 120 degrees C its service life is almost unlimited.

Soviet scientists have developed a method of radiation polymerization of ethylene with tetrachloride carbon for obtaining tetrachlorocanes. They have also created radiation methods for obtaining nonwoven glued materials of a mass structure for the production of highly efficient filtering materials and high-quality substitutes for leather, and also for irradiating wood fiber and plastic materials. Numerous radiation units, including radiation-chemical, radiation biological, and radiation physical units, have been put into production.

Today the USSR occupies a leading position in the world in the development of radiation chemical instrument building. The large production facilities that have been created on this basis are providing the maximum national economic savings through the use of various isotope sources of gamma-radiation.

The units and devices, based upon the use of radioactive isotopes and ionizing irradiations, are now in extensive use and have become an important means of technical progress, conserving assets and material resources in many other sectors of the national economy as well.

In the coal industry, for example, radioisotope instruments are used to automate the monitoring and rigging of skip hoists, and monitoring the levels of coal and rock hoppers, etc.

Radioisotope instruments are also important in machine building for the blocking of unitized machine tools and machinery, automatic production lines, monitoring the feed of billets, sheets of metal, for regulating the levels of molding mixtures, varnishes and solvents in baths, and also blends in cupolas. Noncontact radioisotope methods of the integrity of an instrument, the blocking of automatic production lines for processing crankshafts, casings of hydrorudder, the noncontact regulation of the level of foamy, aggressive liquids or liquids that are under a great deal of pressure and molten metals. Radioisotope blocking devices can also be found in hydraulic presses.

In the light and textile industries radioisotope instruments are used as thermoregulators, level adjustors, object counters, and also for monitoring and regulating the amount of fibers in the loading and curing units of individual assemblies, in installations for preparing the blend at mills, in the receiving hoppers of combing machines and for monitoring the weight of a fibrous layer (canvas), etc.

A special radioisotope apparatus is used in the paper and celluose industry for monitoring and the automated regulation of the weight of the paper and cardboard material.

Radioisotope smoke analyzers are in extensive use. All basic eye glass enterprises and many factories and plants are equipped with them. Such a signalling fire prevention installation not only detects smoke but also determines the location of the combustion and sounds the alarm with acoustical and light signals.

Radioisotope methods for measuring humidity and density are being adopted as are de-icing instruments on aircraft and instruments which provide the automatic braking of rail transport (including trolley cars) and which create conditions for their safe movement on steep inclines and turns. One of the main economic advantages of radioisotope instruments is that they quickly pay for themselves.

The method of gamma-flaw detection and gamma-flaw detection units of various kinds are becoming increasingly important. They provide rapid and reliable control of the quality of metals (of almost any thickness) and welded connections. The promotes the production of an output with a high quality, including manufactured articles that are of an especially important value.

The problem of dealing with static electricity is being handled very effectively with the use of radiation equipment. This static electricity occurs in rather large amounts during the production process in many sectors of industry. In order to understand the national economic importance of this, we shall note that static electricity is connected with the adoption of strongly electrifiable synthetic materials (caprone, nitron, lavsan /Dacron equivalent/, chlorine, and others) and a signficant increase in the operating speed of the technological machines.

Radioisotope neutralizers are widely used to protect from the harmful effects of electrical charges in the textile industry (on combing, conveyor-type, warping, emery cloth and other machines), and also in the camera industry.

Atomic energy has become an irreplaceable assistant in medicine as well. As the result of the development of x-ray radiological methods of diagnosing and treating, we have come up with individual scientific disciplines of roentgenology, radiobiology, and medical radiology. A new branch of health care has been created - radioisotope diagnostics. It makes it possible to do research on the functions of many of man's organs, the condition of the renal bleeding, the upper urinary tracts, thyroid gland, and to study various biological processes, the mechanism of the biosynthesis of the various substances by microorganisms, etc.

Atomic energy is particulary important in the treatment of malignant tumors. Radiation therapy, which has become a self-contained method of treatment, has come to be extensively developed. Today the basic task of the developers of radioisotope equipment for therapeutic purposes is to ensure the irreversible damage to the malignant tumor with minimum damage to the surround healthy tissues.

In recent years in medicine the use of clusters of accelerated protons has expanded considerable; up until now protons were used only in physical experiments. Proton clusters, which are obtained from the accelerators of charged particles, are easily focused and poorly dispersed in human tissues. Because of this it is possible to obtain clearly defined locations of disease with an energy that is lethal for cancer cells but which scarcely damages the surrounding tissues.

Medical workers and physicists are conducting some very interesting work in creating radioisotope electrocardiostimulators. They have developed some original electrocardiostimulators, which constantly bombard the diseased heart with electrical pulses, thereby helping the heart to function normally. At present in the Soviet Union such electrocardiostimulators have been implanted in many dozens of men.

Sources of ionizing radiations and nuclides have made a considerable contribution to the sciences of biology and agriculture. And while this contribution is for the time being not so significant in scope as it is in the atomic power industry or in several other sectors of the national economy, its importance increases with each passing year.

This is demonstrated by the formation in recent years of an independent scientific direction - agricultural radiology. This field of science is comprised of several disciplines, which are called upon to deal with theoretical and applied problems on the use of nuclear energy, radionuclides and ionizing radiations in agriculture. Today this new scientific endeavor includes radiobiology. radiation technology and radioecology.

The main tasks of agricultural radiology are to study the basic laws of the effect of ionizing radiations upon agricultural objects; to study the rotation of radionuclides in agricultural production; to solve an extensive set of tasks with the use of radioisotope technology for its intensification; and the radiostimulation of plants during the pre-sowing radiation of seeds, etc.

Numerous experiments, which were conducted in laboratories, semi-production and field conditions, have shown that as the result of using this agromethod the yield of a large number of agricultural crops (corn, sugar beets, tomatoes, and others) is increased on the average by 10 to 20 percent, and in some cases as much as 30 percent. At the same time the quality of the plants and their resistance to disease are improved.

The extensive adoption of pre-sowing radiation of seeds is called for on the basis of its economical and technological profitability.

At present using gamma-radiation they are coming up with new strains of various food stuffs, including soy beans, non-alcoholic lupine, and buckwheat. According to data of the International Agency on Atomic Energy, today in the world's agriculture more than 100 radiation mutants, hybrids, and plant varieties have been adopted, including wheat, rye, barley, buckwheat, corn, peas, beans, lupine, soy beans, clover, vetchs, eggplant, radishes, potatoes, cotton, tobacco, sunflowers, and sugar beets.

The role of radiation methods for fighting insects, which damage plants and harvested agricultural products, is steadily growing. The main advantage of these methods is the lack of any pollution of the atmosphere and the selective destruction of the harmful insects.

An important direction of agricultural radiology is radioecology. In a methodological sense radioecology somewhat determines the related disciplines, which are engaged in solving the problems of the pollution of agricultural lands by industrial wastes of the nonradioactive nature, and pesticides, etc.

The greatest opportunities for researching the processes of the exchange of substances, nourishing and fertilizers of plants have been opened to agricultural and biological science by the universally assimilated method of tracer atoms. It has made it possible to experimentally study the biosynthesis of various substances and the transfer of nutrients in plants.

The method of radioactive indicators has made it possible to evaluate the assimilability of nutrients in soil and the mechanism of this assimilation by the plants, and to obtain new data on the nature of the transformations in the balance of nitrogen in the soil and fertilizers.

As we all know the growth in population, the improvement of peoples' lives require not only the constant increase in the production of food stuffs, but also their preservation in storage. The processing of food products using atomic energy is very promising, since it makes it possible in several cases to overcome the shortcomings of existing methods of storing food.

As we can see, the role of atomic energy in the economies of the CEMA member-nations is quite significant and constantly growing. For this reason the Standing Commission of the CEMA on Cooperation in the Field of the Use of Atomic Energy for Peaceful Purposes is giving these concerns a great deal of attention. In developing and accomplishing the broad programs for the rational and more efficient use of atomic energy, the commission is making a substantial contribution to the conserving of material and financial resources and to raising the efficiency of socialist production.

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GOALS OF FIVE-YEAR PLAN FOR POWER INDUSTRY ELABORATED

Moscow ENERGETIK in Russian No 2, Feb 82 pp 1-2

[Article: "Five-Year Plan for Soviet Power Engineering"]

[Text] The State Plan for the Economic and Social Development of the USSR for the Years 1981-1985, approved by the November (1981) Plenum of the CPSU Central Committee and accepted by the 6th session of the USSR Supreme Soviet's 10th convocation, is a reflection of the relentless concern of Lenin's party for the welfare of the Soviet people and the further prospering and strengthening of the might of the socialist motherland. The 11th Five-Year Plan is a new, important stage in the construction of communism's material and technical base, in the improvement of socialist public relations and the formation of a new man.

The most important features of the 11th Five-Year Plan are the intensification of the social orientation of the entire economy's development; an increase in the role of intensive factors and the efficiency of social production in forming stable growth rates and improving the structure of the economy; and the accelerated improvment of the end results in comparison with the expenses involved in achieving them.

Indicators for the five-year plan correspond to the tasks set by the 26th CPSU Congress. National revenues spent and saved will increase by 18 percent over the next 5 years; the volume of industrial production will grow by 26 percent; gross agricultural production (average annual computation) by 13 percent; freight turnover for all forms of transportation by 19 percent; and capital investment by 10.4 percent.

The five-year plan opens new prospects for the continued growth of our country's power-generation capacity.

The production of electric power in our country in 1985 will reach 1,555 billion kWh. In order to insure such generation of electric power, 69 million kW of new power-production capacities must be introduced in the country during the 11th Five-Year Plan.

One of the most important features of the current five-year plan in the power industry is the fundamental turn toward the construction of nuclear and hydraulic power stations for the purpose of maximizing the savings of liquid fuel. Nuclear and hydraulic power stations should make up one-half of the newly introduced power-generating capacities.

New capacities equal to twice those commissioned during the 10th Five-Year Plan will have to be introduced at nuclear electric-power stations, and the generation of electric power will have to be brought up to 220-225 billion kWh. Nuclear power stations will have to cover the entire growth of the demand for electric power in the European sector of the USSR.

The introduction of capacities will be continued at the Chernobyl'skaya, Kurskaya, Rovenskaya and Kol'skaya AES's. Generating units will be commissioned at AES's now under construction--the Kalininskaya, Zaporozhskaya, Southern Ukrainian, Khmel'nitskaya, Smolenskaya, Balakovskaya and Ignalinskaya. Construction will be started on a series of new nuclear power stations--the Rostovskaya, Kostromskaya, Bashkirskaya, Tatarskaya and Krymskaya--as well as on a series of nuclear TETs's--the Odessa, Minsk, Khar'kov and Volgograd TET's.

In addition to these ATETs's, nuclear boiler plants or, as they are now called, nuclear heat-supply stations, will also be built. The first of these, for the cities of Gor'kiy and Voronezh, should be commissioned during the 11th Five-Year Plan.

Work will also continue on the creation of powerful nuclear power units using fast reactors.

From what has been listed above, it is apparent what a great amount of work remains to be done by power engineers during the 11th Five-Year Plan. They must develop the nuclear power industry, while the operators must master this newest power-production equipment.

In the years 1981-1985, 12 million kW of new capacities will have to be commissioned at hydroelectric stations.

In the European sector of the country, we will conclude construction of and bring up to full operating capacity the Nizhne-Kamskaya, Cheboksarskaya and Dnestrovskaya GES's, the cascade of Teriberskiye GES's on the Kola Peninsula, the Krivoporozhskaya GES in Kareliya, the Zaramagskiye GES's in the Northern Caucasus, the Miatlinskaya GES in Dagestan, the Vartsikhsiye GES's and the Khinvali GES in Georgia, the Shamkhorskaya GES in Azerbaijan and the cascade of Vorotanskiye GES's in Armenia. Construction will begin on new hydroelectric stations: the Khudoni GES in Georgia, the Yenikendskaya GES in Azerbaijan, the Irganayskaya GES in Dagestan and the Daugavpils GES in Latvia.

A new, special direction in hydraulic power plant construction will be the construction of pumped-storage electric stations in the country's European sector. These stations are necessary to provide even daily loads for nuclear power stations. The Zagorskaya GAES will be commissioned and brought to full rated output, and we will begin commissioning capacities at the Kayshyadorskaya GAES. Construction work will be expanded at a series of new GAES's--the Leningrad, Kanevskaya and Dnestrovskaya, as well as on the Southern Ukrainian hydraulic system.

In Siberia, work will basically be completed on the huge Sayano-Shushenskaya GES and the downstream section of the Maynskaya GES. In the northeast of the country, the designed capacity of the Kolymskaya GES will be brought on line. Construction is to be expanded on the Kureyskaya GES in Taymyr, the Vilyuyskaya GES-3 in Yakutiya, the Katunskaya GES in the Altay mountains and the Bureyskaya GES in the Far East. Preparatory work is scheduled to begin for construction of the high-capacity Middle Yenisey GES.

In Kazakhstan, the Shul'binskaya GES on the Irtysh will be commissioned. In the republics of Central Asia, the Kurpsayskaya and Tashkumyrskaya GES's in Kirghiziva and the Baypazinskaya GES in Tajikistan will be put into operation. Construction will expand on the powerful Rogunskaya GES on the Vakhsh River in Tajikistan.

Major construction work on powerful thermal electric-power stations will be carried out based on the creation of fuel-and-power complexes in the country's eastern regions. Construction work will be completed on the GRES-1 in the Ekibastuz complex with a rated output of 4 million kW, and we will begin to introduce power units of the same output for the GRES-2.

In order to deliver the output of the Ekibastuz GRES's to the unified power system of the Urals, an alternating-current electric transmission line of 1,150-kV capacity will be built. Construction should be completed on the first phase of a 1,500-kV direct-current Ekibastuz-Center transmission line.

The first 800-MW power units should be commissioned at the Berezovskaya GRES-1 in the Kansko-Achinsk fuel and power complex. Its total design output will be 6,400 MW. This will be the first in a series of such GRES's which should provide a reliable flow of electric power to Siberia and will in the future deliver power to the country's eastern regions.

The first power units of the Neryungrinskaya GRES in the Southern Yakutskiy fuel-and-power complex will be put into operation. All of the GRES's mentioned here will operate on cheap local coal from strip mines.

Construction should be completed on the Surgutskaya GRES-1 in the Western Siberian oil and gas region. The first 800-MW power units at the Surgutskaya GRES-2 will be commissioned, and construction work will likewise begin on the Urengoyskaya GRES and the Nizhnevartovskaya electric power station.

We must likewise build and partially put into operation a number of large-scale electric power stations in various parts of the country which are necessary to provide electric power to the corresponding regions--the Azerbaijan, Permskaya, Pechorskaya, Yakutskaya and Primorskaya GRES's and the Angrenskaya GRES in Uzbekistan. We must commence construction of the Southern Kazakhstan GRES and the Talimardzhanskaya GRES in Uzbekistan and complete the construction of the Maryyskaya and Krasnovodskaya GRES's in Turkmeniya.

The development of district heating will be continued at an unabated pace. Plans have been made for the commissioning of 13 million kW of capacities at heat and power stations. Work to increase the centralization of heat supply will be carried out in 150 of the largest cities in the country.

In 1981-1985, work will commence on the industrial development of nontraditional methods of generating electric power. Construction has already begun on a powerful MHD installation at the Ryazanskaya GRES. The first experimental-industrial solar electric power station will be built in the Crimea, as well as a new, powerful geothermal electric power station on Kamchatka.

Work will commence on the industrial development of geothermal sources in Dagestan and Stavropolskiy Kray for the generation of electric power and for heat supply.

We must erect more than 150,000 km of transmission lines rated at 35-1,150 kV, as well as more than 500,000 km of 0.4-20 kV lines for the electrification of agriculture.

The circuit of rural electric networks will be completed in order to increase the reliability of electric power supply to cattle-breeding and poultry-raising complexes.

A major task for operators collectives in the new five-year plan will be the intensification of power production and the improvement of its economy through extensive modernization of existing equipment, improved quality of its repair, enhancement of operating conditions and a reduction of electric power losses in the networks.

The per-unit expenditure of conventional fuel at thermal electric power stations should be reduced to 319 g/kWh.

In order to create the necessary reserves in the power systems, we must, along with introducing new capacities, carry out a great deal of work in mobilizing existing capacities which are not being utilized fully and in eliminating the differences that exist between installed and available electric power station capacities.

Social problems will also be resolved in the 11th Five-Year Plan. We will have to make available more than 10 million m^2 of living quarters for the power engineers and builders.

All manpower and resources as well as all the skill and self-discipline of the power engineers must be mobilized for the execution of the intensive, complex tasks of the five-year plan.

As Comrade L. I. Brezhnev pointed out in his November (1981) speech before the Plenum of the CPSU Central Committee, "The Plan is difficult and intensive. What, then, does this mean? It means that we must accelerate the reorganization of our style and methods of management." The instructions of the General Secretary of the CPSU Central Committee must be put into practice through specific, purposeful work to realize the new five-year plan.

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ELECTRIC POWER

ICE MEASURING DEVICE PRESENTED

Frunze SOVETSKAYA KIRGIZIYA in Russian 30 Jan 82 p 3

/Article by L. Gamzina: "Science for the Five-Year Plan: An Original Ice Measuring Device"/

> /Text/ The use of a new ice measuring device in the designing and construction of high-voltage electric power transmission lines /LEP/ will provide the Soviet national economy with several millions of rubles in savings each year. This new device was created by the scientists of the Kirghiz Scientific-Research Department of Power Engineering of the USSR Ministry of Power and Electrification.

This light-weight, portable design consists of several metal supports with wires stretched between them - these wires are the detectors of ice and snow. They are capable of completely imitating the behavior of conductors of the current of electric power transmission lines in windy, winter weather, when snow and ice freeze on the leeward side of the lines. Modeling precision is achieved with the help of an original system for the suspension of the ice detectors, in which flexible cables and levers are used. The new way of fastening makes it possible for the wires to freely revolve around the axis and to collect on its surface the maximum amount of freezing precipitation. The scientists must make the necessary measurements and to estimate the weight of the winter "coat" on the LEP and to choose the best way to shield it from the pranks of the winter.

The new ice measuring device makes it possible to completely do away with the need to build costly experimental sectors of power transmission lines, which up until now have provided the most accurate data on the snow and ice load to which the supports and wires of the power transmission lines have been subjected.

The chief of the laboratory, who has developed the new device and who is a candidate for the degree of doctor of technical sciences, V.V. Kholodov said, "It is difficult to work with experimental LEP sectors. For to measure how much ice has frozen on the wires it is necessary to lower 160 meter spans from a great height and then replace them. And what if one has to do this operation in extremely windy weather?"

"It is quite easy and convenient to work with our design. Inasmuch as the device can be installed in any place and weighs nearly 20 kilograms, measurements can be taken with it without additional expenditures of time and labor - the ice and snow detectors are about the size of a man."

The reliable, simple and economical ice measuring device of the Kirghiz scientists has been successfully tested and is now being put into production.

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ELECTRIC POWER

NEW POWER STATION IN VORONEZH DESCRIBED

Moscow IZVESTIYA in Russian 1 Feb 82 p 2

/Article by V. Komov, IZVESTIYA correspondent, Voronezh: "An Atomic Boiler Facility"/

/Text/ Just outside the ancient Russian city a unique construction project got underway last year - a gigantic atomic "boiler facility" is being constructed. Its first two power units will provide heat for a population of approximately 400,000 people. The second section of the project will meet the needs of all Voronezh. The rated capacity of the complex will reach 1,500 to 2,000 Gcal per hour.

The Voronezh and Gor'kiy power stations that are now under construction are opening up one of the new trends in the use of nuclear power. From this time forward the atom has a new profession. Along with the customary abbreviation "AES", the abbreviation "AST" - an atomic power station that produces heat for everyday needs - has now entered the language.

What are the advantages of the atomic "boiler facility"?

First of all there is the high degree of economy: in place of the natural supplies of fuel is a compact fuel (in one 24-hour period the power station will "burn" one "small brick" of uranium dioxide, while to generate the same amount of heat requires up to three train loads of fuel). The cost of producing heat here will be less than in ordinary boiler facilities. Smoke and ash, which are discharged from the smokestacks, will disappear. The atomic "boiler facility" does not produce dirty exhausts since the process takes place in a closed space. Also, such a power station has low cooling agent parameters in the reactor (pressure and temperature), as a result of which there is a sharp reduction in the possibility of even the slightest leaks and complete ecological harmlessness is ensured.

The fuel, which is loaded into the reactor, provides three years worth of uninterrupted operation. The warranty life of the reactor is 30 years. Preventive maintenance will be performed in the summer and during the breaks between heating seasons. This is why such "boiler facilities" can be built in the city next to apartment buildings.

The chief of the production-technical department of the power station now under construction, A. Konoplev, emphasizes that, "one must not forget that each kilometer of the heating line -from the source to the consumer - represents not just a drop in water temperature of one degree, but costs of approximately one million rubles. This is just one more piece of evidence of the efficiency of the atomic heating supply station."

Voronezh was not selected at random. Here they have accumulated a great deal of experience in the operation of atomic power stations for peaceful purposes. Just 50 kilometers from the city is the atomic electric power station of industrial importance - the Novovoronezhskaya AES.

It is gratifying that questions connected with the construction of heating networks in Voronezh, of social and cultural facilities, support to personnel and transport, etc., are being dealt with on a comprehensive basis. Next to the power station it is planned to build a settlement for 10,000 to 15,000 inhabitants, where there will be a cultural facility, preschool institutions, a hospital, a cafeteria, a swimming pool, a childrens' park, consumer services, an automobile and motorcycle club, greenhouses and other facilities. The directors of the new construction project drew up their first contract with a landscaping organization. It has already been determined how the power station and the settlement will be landscaped.

The construction project covers 50 hectares of land. All of the necessary support services are now being created. A dining hall, garage, water and sewage systems have already been built. The railroad line and a highway have been extended. Work is now underway on the administration building and a concrete mixing facility. On the day that I arrived at the construction project, the consumer services building for 1,000 builders had just been handed over.

The many years experience of the Novovoronezh workers and their tested cooperation with the collective of the Institute of Atomic Power imeni I. V. Kurchatov inspire confidence that this time word and deed will merge and that the atomic heating supply station will get underway within the established time period.

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ELECTRIC POWER

AZERBAIJAN GRES BEGINS OPERATIONS

Baku VYSHKA in Russian 16 Dec 81 p 1

/Article: "The Azerbaijan GRES Has Produced Current"/

> /Text/ "To put the Azerbaijan GRES into operation" (from the "Basic Directions for the Economic and Social Development of the USSR for the Years 1981 through 1985 and for the Period to 1990")

> Mingechaur, 15 December. (Azerinform). The first power unit of the Azerbaijan GRES, which is being built in Mingechaur, has been linked with the power system of the Transcaucasus.

The entire Soviet Union is helping to build the largest thermal power station in the region; the station's rated capacity will reach 1,200,000 kilowatts. The Taganrog metal workers from the "Red Boiler" Association have sent a 15-storey direct-flow boiler, which is noted for its increased efficiency with a reduced expenditure of fuel. The Leningrad power machine builders have supplied a generator; and the Khar'kov workers provided a turbine. Representatives from many Soviet cities participated in the installation of this equipment. The installation itself was performed using enlarged sections. During the pre-start days the ranks of the GRES builders were reinforced by a large group of installers from Leningrad, Riga, Kuybyshev and from the Kola Peninsula. The construction and installation work on the station's first power unit was completed three months ahead of schedule.

The Azerbaijan GRES, the construction of which was called for in the Basic Directions for the economic and social development of the USSR, will be controlled by highly automated systems using computers. An electronic brain will begin selecting the optimal work modes for the power station, while ensuring the minimal expenditure of fuel.

The collective of the Moscow Construction and Installation Administration of the Spetszhelezobetonstroy /Special Reinforced Concrete Construction/ Trust are now raising the smoke stack, which is of a size unprecedented in the Azerbaijan SSR. This reinforced concrete assembly will rise to 330 meters and will exceed the height of the ancient Bozdat, at the foot of which is rising the GRES. This is the first time that a facility of such a height is being built in an area with seismic activity of eight balls. The smoke, released from such a smoke stack and first passed through a system of filters, will not pollute the air above the city. An entire complex of cleaning facilities, through which the water used for cooling and flushing the equipment will pass, will serve to protect the environment.

The builders and installers, who have made their slogan "the economy must be economical", have since the beginning of the year conserved a great deal of metal, cement and electric power.

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ELECTRIC POWER

INCREASED RELIABILITY PROPOSED FOR RURAL POWER SYSTEMS OF LITOVGLAVENERGO

Moscow ENERGETIK in Russian No 2, Feb 82 pp 21-23

[Article by engineer S. B. Kutas: "Increasing the Reliability of Litovglavenergo's Rural Electric-Power Lines"]

[Text] Agriculture consumes more than 24 percent of the electric power in the Lithuanian SSR. There has been a concentration of agricultural production in recent years, and this means a concentration of electric loads. This has increased considerably the requirements for an uninterrupted supply of electric power which, to a great degree determines the reliability of the distribution networks.

Starting fron 1965, all overhead lines of 1z and 0.38 kV have been erected only on reinforced concrete towers. Construction and installation organizations were created for this, and workers in the plants of the Litovglavenergo power-construction trust mastered the production of reinforced concrete towers.

In connection with the lack of sufficient experience in the mass introduction of reinforced concrete towers in electric-power networks, insufficient attention has been devoted to questions of their reliability. Operations have shown that the attachment of the conductors to the insulators was unreliable, the lines were hung with too great a span between the towers and the insulation on the externally mounted insulators as well as the pin-type insulators proved to be inadequate. As a result of this, the conductors rapidly deteriorated, particularly at the places where they were joined to the insulators. The insulators likewise began to suffer damage. The reliability of 10-kV lines began to deteriorate.

There were 22.5 failures per 100 km of 10-kV line in 1970. Of these, 46 percent occurred due to breaks in the conductors and connectors; 31 percent were due to the failure of the pin-type insulators; and 17 percent were due to failure of externally mounted insulators. Rural consumers suffered from 4 to 15 power outages per year. The total duration of consumer outages was 15 to 80 hours, and in some cases exceeded 100 hours. Particularly long consumer outages appeared as a result of natural phenomena: wind, ice glaze and heavy frost, when the stresses on the lines exceeded predicted values.

Under such conditions, it became necessary to develop a program for improving the technical condition of the networks in an effort to increase the reliability of existing 10-kV lines and reduce both scheduled and unscheduled outages. Technical and organizational measures have been planned which either do or do not require capital investment (with small or large expenditures), both operational and long-range. Among the technical measures are: modernization and major repairs and the introduction of automation and remote-control equipment. Organizational measures include the improvemnt of supervisory control and the introduction of progressive labor-organization measures.

If the effect from the implementation of the measure can be assessed immediately (the replacement of a worn conductor, for example), then the measure is regarded as operational. If it is carried out with some difficulty (an analysis of the existing condition, for example, or a determination of the reliability of individual elements in the network), then the measure is considered to be long-range. The organization of supervisory control and the introduction of progressive labor-organization measures can be considered those which require minor capital expenditures. The improvement of the networks' technical condition and their automation require great expenditures. The make-up of a program for improving the reliability of rural distribution networks is presented in diagram form.

An analysis of the existing condition began with the accumulation and processing of data regarding failures and scheduled outages of overhead lines and transformer substations. This provided for an explanation of the nature of and reasons for the failures and made it possible to determine the basic solutions. A computer was used for this purpose. As a result, the number of scheduled outages and failures together with an indication of the damaged elements and the nature of and reasons for these failures was determined for enterprises within the electric systems and for the power system as a whole. A systematic categorization of the failures with regard to the types and brands of damaged elements depending upon the time the lines have been in service, the current in a single-phase partial ground and the length of the spans was made. The number of failures and scheduled outages, the average number of outages to consumers and their duration, the shortfall of electric power and the specific vulnerability of various brands of conductors was determined for 10-kV lines.

Now, at the present time, this task is constantly becoming more complex and is being carried out within the subsystem of Litovglavenergo's automated control system.

An important organizational measure was the introduction of complete major overhauls to be performed every 6 years on 10-kV overhead lines and every 10 years on 0.38-kV overhead lines. When 10-kV lines undergo complete overhaul, the 10/0.38-kV substations connected to them are also overhauled. At present, the 10-kV lines are undergoing a complete overhaul for the second time. A complete overhaul of 0.38-kV lines was begun in 1976. Based on results from an analysis of the networks' condition, an overhaul was first begun on segments which possess the greatest vulnerability. It sometimes became necessary to conduct a major overhaul of certain segments without waiting for the 6-year period to expire.

The work-team form of labor organization proved to be the most efficient in carrying out complete overhauls. Centralized work teams were formed at electric-system enterprises and within distribution networks. Wherever possible, the teams were equipped with mechanized equipment. For use with this equipment, technically based production quotas and progressive salary scales were employed. During major overhauls, all measures for improving the technical condition of the existing networks were carried out as was the necessary operational work. For this reason, the operations personnel from distribution networks were enlisted in the work carried out by the centralized brigades.

Practice has shown that program organization of operational control over distribution networks provides for a reduction in the duration of electric-power outages for consumers during scheduled as well as emergency disconnections of the distribution networks. Supervisory posts staffed by the duty supervisors (responsible duty personnel) and travelling operations teams equipped with a graphic panel and high-frequency communications as well as radio and telephone communications have been established within each distribution network. At all 35 to 110-kV substations located in the area served by the distribution network, remote signalling is employed, and more than 25 percent of the substations are remotely controlled. The travelling operations teams are provided with radio sets. The 10-kV networks are under the control of the distribution network supervisor. The 0.38-kV networks are transferred to the control of the travelling operations teams.

The most labor-intensive portion of the program for increasing the reliability of rural electric networks is the improvement of their technical condition. Aluminum conductors of small cross-section (less than 35 mm^2) on long spans (more than 100 m) wore out very quickly and caused a great many failures. This problem was solved by two methods: additional towers were installed and the conductors were replaced. A vibration-proof method of joining the connectors to the pin-type insulators was developed, and the entire conductor was reattached along segments undergoing major overhaul. The ShS-10 and ShSS-10 insulators proved to be unsuitable on reinforced concrete towers. The best results were obtained when these insulators were replaced with ShF-20 and ShF-10G insulators. The ShZhB-10 insulators also proved to be insufficiently reliable.

The production of externally mounted 20-kV disconnectors with a grounding foot was mastered in Litovglavenergo. Engineers are also improving the commercially produced RLN-10 disconnectors with strengthened insulation and finished grounding feet. This measure not only increases reliability but also facilitates work in preparing the working area in distribution networks. This thereby improves industrial hygiene conditions, since it is no longer necessary to install portable grounds at the place where the disconnect occurs. The work carried out in 1975-1980 is cited below:

Length of cables replaced, km	3,911
Number of insulators replaced	469,000
Number of disconnectors replaced	10,561
Number of towers installed	31,884
Length of cables reattached, km	10,931

During these years, 23,700 km of 10-kV overhead lines, 27,800 km of 0.38-kV lines and 3,046 10/0.4-kV transformer substations underwent overhaul.

The new construction of 10 to 0.38-kV lines and enclosed transformer substations plays a large role in improving the reliability of the electric supply to rural consumers. New lines are already being built on the basis of the previously mentioned improvements and are sufficiently reliable.

In this program of major construction and modernization, there is redundancy in the supply from 10-kV lines, 35 to 110-kV twin-transformer substations are being built and the length of the lines to the consumers is being reduced.

The technical condition of the networks has improved thanks to the work which has been done.

Below are presented approximate values representing the various lengths of 10-kV lines comprising the total amount of 10-kV lines, percent:

Length of lines, km	Percent share
0-10	28.5
10-20	23
20-30	16.5
30-40	13
40-50	7
50-60	5
60-70	2.5
70-80	1.8
80-90	1.2
90-100	0.3
Over 100*	1.2

*There are 12 lines more than 100 km in length.

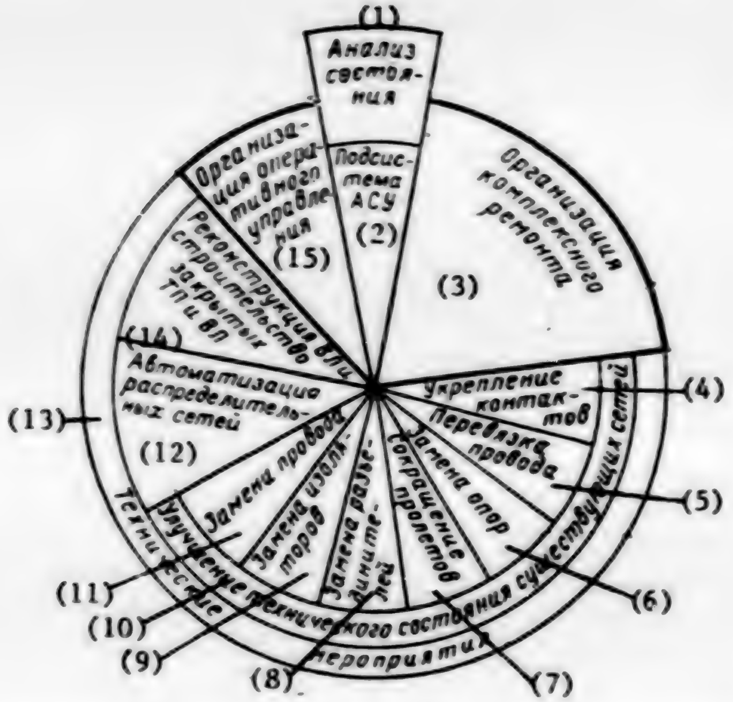
The probability of faults per 100 km of 10-kV overhead line is cited below per year:

Years	Probability of faults,%
1975	12.9
1976	11
1977	10.3
1978	9
1979	8.4
1980	7.9

Although the probabilty of faults decreases yearly, their overall number in a year was 2,800. The distribution of faults with respect to type (%) is presented below:

Failure of conductors and connectors	51
Insulator breakdown	20
Disconnector failure	13
Tower failure	4
Other types of failure	12

The automation of rural electric networks is one of the most important directions for further improving their reliability. In the development of plans for electric networks in Litovglavenergo's districts, provisions have been made for the necessary number of subdividing and backup stations, and their places of installation have been determined. It has been decided that 35 to 110-kV lines are to be divided into three sections using two backup and one subdividing station. In this case, the disconnector at the subdividing station remains in the open position during normal operations. Whenever possible, the backup and subdividing stations are located at enclosed 10/0.38-kV transformer substations. A laboratory for automating distribution networks has been created within the Klaypeda electric-power system.



Structure of a program to improve the reliability of rural distribution networks

Key:

1. Analysis of condition
2. ASU subsystem
3. Organization of complete overhaul
4. Strengthening of contacts
5. Reattachment of conductor
6. Replacement of towers
7. Shortening of spans
8. Replacement of disconnectors
9. Replacement of insulators
10. Improvement of technical condition of existing networks
11. Replacement of conductor
12. Automation of distribution networks
13. Technical measures
14. Overhead line modernization and construction of enclosed transformer substations and lines
15. Organization of operational equipment

Conclusions

1. The reliability of rural electric networks in Litovglavenergo is improving. This proved to be possible with the comprehensive solution of technical and organizational problems.

2. Automation is one of the most important measures for further improving the reliability of rural electric networks. The application of computers makes it possible to process the high-volume of data on the distribution networks and to develop a program for improving the reliability of the electric-power supply to agriculture.

3. It is necessary to develop and master the production of easily operated equipment for subdividing and backup stations in 10-kV distribution networks.

4. It is necessary to organize a program to train distribution-network personnel in the operation of automated distribution networks.

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ELECTRIC POWER

BRIEFS

THIRD POWER UNIT AT CHEBOKSARSKAYA GES--The third power unit of the Cheboksarskaya GES has been put into operation. In the first days of the new year this unit fed power into the Unified Power System of the USSR amounting to more than two million kilowatt-hours of electric power. Since the start-up of the first power unit this final hydroelectric power station on the Volga River cascade has generated more than 300,000,000 kilowatt-hours of inexpensive electric power. Both of the hydroelectric power stations are being built and are operating. Work is underway on the installation of the fourth power unit on the Volga River; and on the Kama River the ninth power unit is being installed. Work is being conducted according to a tight schedule. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 7 Jan 82 p 1] 8927

PROGRESS AT PERMSKAYA GRES--The first assemblies of the 800,000 KW power unit have arrived from the Leningrad Elektrosila Plant at the Permskaya GRES construction. This year will be one of the most important for the builders of the GRES: they must install 10,000 tons of preassembled reinforced concrete, 16,000 tons of metal structures, and next year Western Ural enterprises will receive power from the first power unit of the new thermal power station. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 Jan 82 p 1] 8927

POWER LINES FROM KURPSAYSKAYA GES--The high-voltage power transmission line running for a distance of 130 kilometers from the Kurpsayskaya GES to Suzak has been placed on load. The LEP has passed through the mountain peaks of the Tyan'Shan', crossed the turbulent Naryn and the Karadar'ya rivers. In the 11th Five-Year Plan in the Kirghiz SSR a total of more than 6,000 kilometers of LEP's will be put into operation. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Feb 82 p 1] 8927

WEST SIBERIAN POWER LINES--Novyy Urengoy, Tyumen' Oblast. Electric power has reached one of the northernmost natural gas deposits in West Siberia - the Urengoy field. A 600-kilometer LEP was put into operation today, which links this key gas field with the USSR's Unified Power System. [Text] [Moscow PRAVDA in Russian 4 Feb 82 p 2] 8927

FINAL POWER UNIT FOR MARYYSKAYA GRES--The sixth and final 210,000 KW power unit of the first section of the Maryyskaya GRES imeni 50 Years of the USSR has been put into operation. The Mary-Karakul' high-voltage power line has also been put into operation. It has been decided to put the sixth power unit at planned capacity two months ahead of schedule. /Excerpt/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 31 Jan 82 p 1/ 8927

MANGYSHLAKSKAYA TETS NOW OPERATING--Shevchenko. A reliable supply of electricity for the oil fields of the Buzachi Peninsula, the rapid development of which was outlined in the decisions of the 26th Party Congress, will be provided by the Mangyshlakskaya TETs-2. Its tenth and final power unit with a rated capacity of 100,000 KW has provided current. It was put into operation ten days ahead of schedule. With the start-up of the second thermal power station, the "heart" of the peninsula's power complex began beating more evenly - the fast breeder atomic electric power station. And now in turn the introduction of the new power station has taken place - the Mangyshlakskaya GRES. /Text/ /Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 Jan 82 p 1/ 8927

EXPERIMENTAL SOLAR POWER STATION IN CRIMEA--The designers of the Taganrog Production Association "Red Boiler" and the specialists of the All-Union Thermotechnical Institute imeni F. E. Dzerzhnskiy have developed a design for a steam generator for an experimental solar electric power station, which is being built in the Crimea in the settlement of Lenino near Kerch . The steam generator is the heart of the future electric power station. In its manufacturing technical specifications it is written: "being introduced for the first time". The steam generator just as the solar electric power station itself are the first of their kind in the Soviet Union. The rated capacity of the power station is relatively small - 5,000 KW. But it must show the way to the solar machines of the second generation and help the scientists, engineers to create more powerful electric power stations - at 200,000 to 300,000 KW. The chief of the office for future designing at the "Red Boiler", G. Luk'yanov, under whose supervision work was conducted in Taganrog on the creation of the solar steam generator, unfolds before me a sheet of drawing paper. On it in color is a diagram of the future power station. Around the circle are the blue rectangles of the heliostats - the mirror reflectors. There will be 1,600 of them spread out over a space of four hectares. In the center is an 80-meter tower with panels suspended from it. The rays of the sun are directed at them, which are captured by the heliostats. The water that circulates in the panels is heated to 260 degrees and converted into steam, which in a special drum is separated from the water and fed to the blades of the turbine. At night, when the sun sets or when the sky is overcast, the steam generator does not operate naturally. But in such cases the electric power station still operates from a special storage device which collects and keeps heat during a sunny day. "We tried to use standard elements of machines in the solar steam generator, which were produced by our association," says

Luk'yanov. "The difficulty was in selecting a diagram for the water circulation in the panels. When a cloud runs in front of the sun, the temperature in the panels changes, which means a drop in the production of steam. Up to 50 times we had to "run" a mixture of water and steam out of the panels into a drum and then back again so that an adequate amount of steam would form." Mankind has already learned to make use of the energy of the sun's rays for heating houses, preparing food, making fresh water, and for supplying space ships with power. In the near future the first Soviet solar electric power station will be in operation. At present the working blueprints are being transmitted to the shops of the lead plant for the manufacture of a solar steam generator. It is to be completed this year. /Text7 /Moscow TRUD in Russian 10 Jan 82 p 17 8927

NEW LOADER FOR POWER STATIONS--The steady feed of fuel from the storage facilities to the thermal electric power stations is ensured by the rotary continuous action loading machines, which are now being manufactured by the Donetsk Machine Building Plant imeni Leninskiy Komsomol of the Ukraine. The first such unit has been shipped to the Ekibastuzskaya GRES-1. Three trains are needed to transport the unit. The system of conveyors and other assemblies of the gigantic mechanical loader can provide a feed of 3,600 cubic meters of coal per hour from the storage facilities. Such a machine, which is controlled from a panel, will replace 20 bulldozers and will free a large number of workers and will sharply reduce railroad car idle time, in which the fuel is delivered. /Text7 /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Jan 82 p 27 8927

DNESTROVSKAYA GES PROGRESS REPORT--The first two hydroturbines of the Dnestrovskaya GES, with a total rated capacity of 234,000 KW, have provided industrial current at the very beginning of the year. The other four turbines are to be put into operation this year and next year. When they are put into operation the capacity of the power station will exceed 700,000 KW. The socialistc competition for the construction of the GES attracted quite a few names of leaders and innovators of production. These include the brigades of P. Bondarchuk, P. Voloshchuk, M. Astapenko, and V. Sakhatyr. /Text7 /Moscow STROITEL'NAYA GAZETA in Russian 10 Jan 82 p 17 8927

SECOND POWER UNIT OF KURPSAYSKAYA GES--In the first days of the new year the second power unit of the Kurpsayskaya GES on the Naryn River in the Kirghiz SSR began operation. Its rated capacity is 200,000 KW. Like the first, the second unit was also put into operation ahead of schedule. Deserving of credit for this are the collectives of the trust Naryngidroenergostroy, the Central Asian administrations of the trusts Gidromontazh and Spetsgidroenergomontazh. In spite of extreme difficulties connected with poor weather, these organizations worked at a rapid pace. /Text7 /Moscow STROITEL'NAYA GAZETA in Russian 10 Jan 82 p 17 8927

POWER LINE FOR KANSK-ACHINSK--Sayanogorsk, Krasnoyarsk Kray. Power from the Sayano-Shushenskaya GES has reached the facilities of the rapidly developing Kansk-Achinsk fuel and power complex. The construction projects are linked by a 270-kilometer LEP-500. This year more than 1,600 kilometers of LEP's will be erected in the kray. [Text] [Moscow PRAVDA in Russian 21 Jan 82 p 1] 8927

KARELIAN HYDROELECTRIC POWER STATIONS--In spite of the sharp January freeze, every four days the cascades of the hydroelectric power stations on the the frozen rivers of Kareliya produce 10 million kilowatt-hours of electricity in addition to the basic assignment. The basis for such a record indicator, which was achieved for the first time, is to be found in the owner's gumption demonstrated since fall. "We are strongly helped prior to the freeze by torrential rains," reports the chief engineer of Karelenergo, Mikhail Ledvich. "The computer has helped us to deal correctly with the fall flooding. Its computers have found the optimal variant for filling the reservoirs with moisture over a long period of time. This is how we solved the problem of selecting the most efficient modes for operating the hydrosystems in extreme conditions. This was supported by the engineering service, which completed the transfer of control of all GES's scattered throughout this enormous territory, to a unfied dispatch panel. With the hydroelectric power station built according to the GOELRO plan of Lenin, in Kareliya began a program for the comprehensive assimilation of natural resources and social transformations. The Sunskaya GES provided Kondopoga with current on a white "linen" on which today is printed one in three newspapers in the Soviet Union. The construction of cascades on the Vyg and Kemi rivers led to the formation of the cities of Belomorsk and Segezhi. Of course, by today's measures the Karelian GES's are quite small, And the industry of the autonomous republic could not possibly get along without the power of the Kol'skaya atomic electric power station. But still the importance of these small hydroelectric power stations to the economy is considerable. In converting the fast running waters of these rivers, Kareliya is increasing the pace of assimilating the natural riches and is conserving nearly 750,000 tons of liquid fuel each year. And from January for the completeness of the description of the Karelian electric power, this new economic term is appropriate; the least expensive in the Soviet Union. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 26 Jan 82 p 1] 8927

PROGRESS REPORT ON TURUKHANSKAYA GES-- The Leningrad Department of the Gidroproyekt Institute is the author of nearly 60 designs of large electric power stations. N. Yakovlev, the chief engineer of the institute, speaks about new undertakings of the institute in an interview with a correspondent of the APN /Novosti press agency7. "The primary routes of our surveying expeditions today are along the rivers of Siberia and the Far East. Near the spot where the Podkamennaya Tunguska empties into the Yenisey River it is projected to build the Osinovskiy hydroelectric complex. This complex will incorporate hydroelectric power stations located approximately 100 kilometers apart. One power station will be built on the Yenisey River and two will be on the Tunguska. The total capacity of these three power stations will be 10 million KW. On the Nizhnyaya Tunguska it is planned to build the Turukhanskaya GES with a rated capacity of 20 million KW." "Are you speaking about the capacity of a single power station? After all the capacity of the Krasnoyarskaya GES, the largest in the Soviet Union, is six million KW and the Sayano-Shushenskaya GES, which is now under construction, is 6.4 million. Is it possible today to combine the capacities of three such giants into one hydrosystem?" "The figure 20 million KW is truly difficult to imagine. But we are talking about the richest opportunities of the natural environment of Siberia. The Nizhnyaya Tunguska River contains a great deal of water. Its depth reaches 25 to 30 meters and the flow rate of the water into the high water exceeds 1,000 cubic meters per second. The river bed lies between high cliffs literally on the bottom of a canyon. The creation of the turbines, generators and other equipment for the Turukhanskaya GES is connected with the solution of many technical problems, since as of today the required assemblies simply do not exist. It is proposed to install machines of uncommon capabilities - radial-axis turbines with a rated capacity in excess of one million kilowatts each and hydrogenerators with the same parameters. Our enterprises have already received their assignment." /Text7 /Vilnius SOVETSKAYA LITVA in Russian 21 Jan 82 p 27 8927

CSO: 1822/89

MINISTER OF GAS INDUSTRY DESCRIBES HIS BRANCH'S URGENT PROBLEMS

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 1, Jan 82 pp 1-3

[Article by Minister of Gas Industry V. A. Dinkov: "The Industry's Urgent Problems"; passages enclosed in slantlines were underlined]

[Text] The November 1981 CPSU Central Committee Plenum and the Sixth Session of the USSR Supreme Soviet's 10th Convocation were major events in our country's social and political life.

Comrade Leonid Il'ich Brezhnev's speech to the plenum, which was profoundly elaborated in its theoretical evaluations and scientifically substantiated conclusions, contained an exhaustive analysis of our party's and government's activity since the 26th CPSU Congress, paths for further realization of the congress's decisions were disclosed comprehensively, and detailed features and a political, social and economic evaluation of plans for the 11th Five-Year Plan period and for the approaching year 1982 were given.

Gas-industry workers, like all Soviet people, wholly and completely approved Comrade L. I. Brezhnev's speech and the documents of the plenum and the Sixth Session of the USSR Supreme Soviet and adopted them for unswerving execution as a specific developed program for their practical activity,

Our industry's workers received with enormous joy and deep emotion Leonid Il'ich Brezhnev's letter of greeting that was associated with the completion of construction ahead of schedule of the third phase of the Mubarek Gas Complex, which is to recover and treat 5 billion cubic meters of natural gas per year. The heartfelt, penetrating words of this prominent political and social figure of modern times--words we have adopted as a new example of the CPSU Central Committee's paternal concern for and attention to the gas industry's development--are a powerful impulse toward creative activity and labor enthusiasm in all elements of our industry, and they inspire us to new labor achievements.

Our industry's collectives toiled with full exertion of effort during the first year of the 11th Five-Year Plan. During this time, gas recovery for the country as a whole reached 465 billion cubic meters, its annual growth was about 30 billion cubic meters, and 7 billion cubic meters were recovered above the state plan. All the ministry's gas-recovery associations carried out the tasks established for producing gas. Industrial output volume rose 6.7 percent, labor productivity 4.3 percent. The plan for realizing output was overfulfilled by 100 million rubles, and above-plan profit exceeded 110 million rubles.

The fruitful work results of our industry's workers last year have become a firm basis for solving the still more complicated and more massive tasks of the 11th Five-Year Plan.

/The gas industry is to perform a number of major tasks in the areas of geological exploration, drilling and the recovery and treatment of gas, condensate and oil. It is necessary to introduce into industrial operation 65 new fields, including the Sovetabadskoye in Turkmenia, with the recovery in 1985 of 26 billion cubic meters of gas, and to master the Karachaganakskoye gas-condensate field in Kazakhstan, with the recovery of 3 billion cubic meters of gas, 2 million tons of condensate and 300,000 tons of sulfur. In an exceptionally short time, based upon gas of the Astrakhan field, which is unique in content, a large gas-and-chemicals complex is to be put into operation, at which 3 billion cubic meters of gas, 1 million tons of sulfur and 1 million tons of condensate are to be recovered by the end of the Five-Year Plan.

In Uzbekistan the processing of gas at the Mubarek Gas-Treatment Plant will be further developed, to bring its annual volume up to 22 billion cubic meters.

Major work is to be done to master oil and gas fields of the continental shelf.

West Siberia remains the main area of growth in the country's gas recovery, during both the 11th Five-Year Plan and the more remote long-term. A minimum of 360 billion cubic meters of gas should be recovered here in 1985./

West Siberia's gas industry has advanced considerably. Its raw materials base has been expanded, and its production and scientific and technical potential have grown. Large, highly productive gas-recovery enterprises have been established beyond the Arctic Circle. Right now the inventory there includes more than 1,000 wells, 16 modern automated installations for integrated gas treatment, and 10,000 kilometers of trunk gas pipelines, with compressor stations that have a total power of 3.5 million kilowatts.

The capital-worker ratio in this region is severalfold higher than the average for the ministry, and the prime cost for recovering gas is 16 percent lower than the industry's average. The most concentrated indicator--labor productivity--is 3-fold higher than in other parts of the country. We have at our disposal here highly skilled personnel, and much experience has been gained in the introduction of highly productive equipment and technology.

/During the 11th Five-Year Plan gas recovery in this region is to increase 2.3-fold; the development of gas-condensate and oil deposits will be started. A large-scale program for bringing the Urengoy field to its designed level for annual gas recovery, in the amount of 275 billion cubic meters, is to be undertaken./

The tasks for gas pipeline construction are especially great and important. During the 11th Five-Year Plan the five largest West Siberia-Central Economic Region gas trunk pipelines and also the Urengoy-Uzhgorod export gas pipeline must be built and put into operation.

Raising capital investment effectiveness, reducing the amount of uncompleted construction, saving material and labor resources in all possible ways, introducing new equipment and advanced technology widely, and improving the organizational structure of management have been made the basis for realizing this complicated program. The most earnest attention will be paid to questions of raising labor productivity and improving all technical and economic indicators.

During the assimilation of West Siberia's fields it is planned to use highly productive gas wells, installations for integrated gas treatment with unit capacities of up to 20 billion cubic meters per year, a new class of operating equipment and gas pumping units with 16,000 to 25,000 kilowatts of power. Major work will be done, jointly with Minpribor [Ministry of Instrument Making, Automation Equipment and Control Systems], on the automation and automated control of the Urengoy Gas Complex and the gas pipeline systems associated with it.

The Urengoy-Uzhgorod gas pipeline is to be automated in integrated fashion at the third level of management of the USSR YeSG [Unified Gas-Supply System]. Not one country in the world has a similar system of control.

Much work is being done to unify designs that call for a rise in the level of industrialization. Construction organization efforts are being concentrated on a single central corridor. All this will enable labor and operating expenditures to be sharply reduced during construction and labor productivity to be increased.

Because of assimilation of the deep-lying Valanzhinskiy deposits, drilling operations will grow 3-fold in the region. Large forces of drillers of the Ukraine and the Kuban' have been recruited for this purpose. At the same time, measures are being taken to strengthen Tyumengazprom [Tyumen' Gas Industry Association] drilling organizations substantially.

/The great scale and the conditions under which West Siberia's gas industry will be developed during the 1980's will increase the urgency of accelerating work on the integrated buildup of construction of facilities in the region. Questions of increasing production should be interlinked with those of expanding the infrastructure and improving social and living conditions for the workers./

Questions of the integrated buildup of the Urengoy field's facilities are acquiring special significance. However, the state of affairs does not meet modern demands for the speedy erection of high-quality facilities. There is a lag in introducing UKPG's [integrated gas-treatment installations] into operation and in building roads, electric-power lines and industrial bases.

The job of the gas industry and of interdependent construction branches lies in the most rapid elimination of this lag.

The pace of development of West Siberia's gas complex is determined to a great extent by the reliability of the electric-power supply system, upon which the rhythmic operation of drilling enterprises and compressor stations and, in the final analysis, the effectiveness of all production facilities, depends.

However, the power-engineering base that exists here does not meet modern requirements. Gas fields and compressor stations and the cities of Nadym and Novyy Urengoy are now being provided with electricity from in-house power stations of 240,000 kilowatt capacity, for the servicing of which 3,500 people are employed. Given the general shortage of labor resources, this is wasteful. A basic factor that hampers the conversion to a centralized power supply for gas-field facilities is the unsatisfactory construction of the Surgutskaya GRES-Urengoy LEP-500 [500-kilovolt power-transmission line] and the Tarko-Sale-Urengoy substations.

A major power-engineering construction program is contemplated for the five-year plan, so USSR Minenergo [Ministry of Power and Electrification] must examine and solve problems of strengthening the base for the construction industry and for construction organizations that will be capable of erecting power-engineering facilities ahead of time.

One problem that is just as severe is the lack of roads, primarily those within the gas fields and along the pipelines. Plans for the construction of hard-topped roads at the Urengoy gas-field regularly go unfulfilled. Because of this, major losses occur during the transport of materials and equipment, and the potential for promptly eliminating emergency situations that arise on the gas pipeline system is reduced.

The potential for river transport is being used poorly, and railroads are being built slowly. Mintransstroy [Ministry of Transport Construction] must concentrate construction-organization forces here and complete construction of the Yagel'naya-Urengoy Railroad by the first quarter of 1982 and build docks at Sergino and Yamburg. During the current five-year plan the problem of building the Nadym-Komsomol'sk pipeline haul road must be solved.

/We consider radical improvement of housing construction in the West Siberian Gas Complex region to be an especially important task of the five-year plan. The five-year plan calls for the construction here of 1.32 million square meters of total housing space, children's institutions for 4,700, schools for 7,700 students, hospitals for 920 beds, and a number of other facilities./

The ministry has acquired settlements in sets, complete with facilities for social, cultural and domestic purposes. The first such settlements in 1982 will be sent to compressor stations. The task is to erect these facilities as quickly as possible.

The integrated buildup of Novyy Urengoy and fulfillment of all plan tasks for introducing housing into use remain the central problems in transforming this region.

The Ministry of Gas Industry considers that it is its duty to take an active part in solving foodstuffs problems, by greatly increasing subsidiary agricultural activities and sovkhozes for producing meat, milk, eggs and other livestock products. Right now major work is being done by all our associations to expand existing subsidiary farms and to create new ones.

The Ministry of Gas Industry will extend every assistance in developing subsidiary farms and will support any initiative in this important matter.

In the modern era, the gas industry has at its disposal a firm raw-materials base, a high production, economic, scientific and technical potential, and--the main thing--highly qualified personnel, who can solve problems that are still more complicated and grand in scale, for the further accelerated involvement of the country's gas resources in the national economy's turnover, primarily Tyumen' resources.

There is no doubt that Soviet gas-field workers, displaying high patriotic consciousness, will multiply their creative and labor efforts to the highest degree and will raise still higher the banner of socialist competition in order to worthily greet the forthcoming anniversary--the 60th year of the forming of the USSR--and will not only fulfill but also overfulfill the 1982 plan.

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11409
CSO: 1822/126

CURRENT GAS-INDUSTRY CONTRIBUTIONS TO NATIONAL ECONOMY CITED

Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 82 p 3

[Article by V. Borisov: "The Stream of Gas Is Growing"]

> [Text] Tyumenskaya Oblast. Gas recovery at the fields of All-Union Industrial Association Tyumengazprom [Tyumen' Gas-Industry Association] is increasing. Each day 565 million cubic meters of valuable fuel and raw material for chemicals are being recovered here. This is the highest level of gas recovery since the start of development of the Arctic fields. Tyumen' gas-field workers are participating actively in socialist competition in honor of the 60th anniversary of the USSR. They have committed themselves to obtaining 228 billion cubic meters of the "blue fuel" during the second year of the 11th Five-Year Plan.

Under this year's plan, gas-industry workers should give the national economy 492 billion cubic meters of gas--6 percent more than in 1981. In January the industry's enterprise collectives fulfilled the monthly plan by 101.1 percent. Recovery grew by 6 percent over last year's for the same period. An additional 600 million cubic meters of gas has been sent from the fields to customers over trunk pipelines.

Tyumengazprom gas-field workers have achieved a new success in competition. In accelerating assimilation of the Urengoy field, they increased gas recovery in West Siberia by 20 percent over January of last year.

The collective of Turkmengazprom, from which customers received 153 million cubic meters of gas above the plan, has worked successfully. Workers of the Orenburg Gas and Chemicals Complex recovered and processed an additional 115 million cubic meters. Ukrgazprom [Ukrainian Gas-Production Association] and other associations finished January with good indicators. Only one association--Uzbekgazprom [Uzbek Gas Production Association]--did not cope with the monthly plan.

Gas-field workers are now focusing their efforts, together with those of builders and installers, on the most rapid buildup of facilities for the Urengoy field and on construction of the Urengoy-Novopskov trunk gas pipeline.

In February work will be completed on introducing the linear portion of the Urengoy-Petrovsk arterial into operation. This will enable gas deliveries to the country's European area to be greatly increased. At the same time, a new compressor station on the Nizhnevartovsk-Parabel' Kuzbass gas pipeline is being readied for startup. The flow of gas to metallurgical, chemical and other enterprises of this Siberian industrial region is growing.

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MAIN DIRECTIONS OF COAL INDUSTRY DEVELOPMENT

Moscow EKONOMICHESKAYA GAZETA in Russian No 7, Feb 82 pp 1-2

[Report on interview with Minister Boris Fedorovich Bratchenko of the USSR Ministry of the Coal Industry by EKONOMICHESKAYA GAZETA; date, place and name of interviewer not given]

[Text] [Question] Readers of EKONOMICHESKAYA GAZETA are interested, Boris Fedorovich, in what indicators the coal industry entered 1982 with?

[Answer] According to the five-year plan, coal production in our country in 1985 should be 775 million tons. The greatest development in our industry will be in the eastern parts of our country. The main conditions for successful operation of the coal industry are reequipment of mines, changing over to new technology and increasing the capacities of open-cut coal mines. In the first year of the five-year plan period, 704 million tons of coal and 37 million tons of shale were produced. Strip mining was developed at leading rates. Strip mines furnished five million tons more fuel than in 1980. A considerable increase was achieved in the Kansko-Achinsk basin where strip mining increased coal production by 5.7 percent; in Kuzbass -- by three percent; and in the Karaganda basin by 1.6 percent.

Collectives of production associations "Donetskugol'," "Krasnoarmeyskugol'," "Makeyevugol'," "Rostovugol'," "Novomoskovskugol'," "Vorkutaugol'," "Karagandaugol'," "Kemerovougol'," "Vostsibugol'," "Yakutugol'," and "Estonslanets" operated well. They sent consumers hundreds of train loads of fuel above the plan. The annual plan for mining coking coal was overfulfilled by 1.5 million tons.

Supplying enterprises with new equipment continued last year. On this basis, the level of mining coal by mechanized complexes, and tunneling mine drifts with combines increased. Coal machine building plants increased the delivery significantly of modern supports, loading machines, electric engines, other equipment and spare parts to mines. The volume of construction installation work increased by over 40 million rubles. The "Dolzhanskaya-Kapital'naya", the largest mine with an enriching factory was put in operation in Donbass.

However, as a whole, the coal industry has operated extremely intensely, but has not coped with the annual plan.

· ДОБЫЧА УГЛЯ В ОСНОВНЫХ УГОЛЬНЫХ БАССЕЙНАХ СТРАНЫ В 1980 ГОДУ И В 1985 ГОДУ

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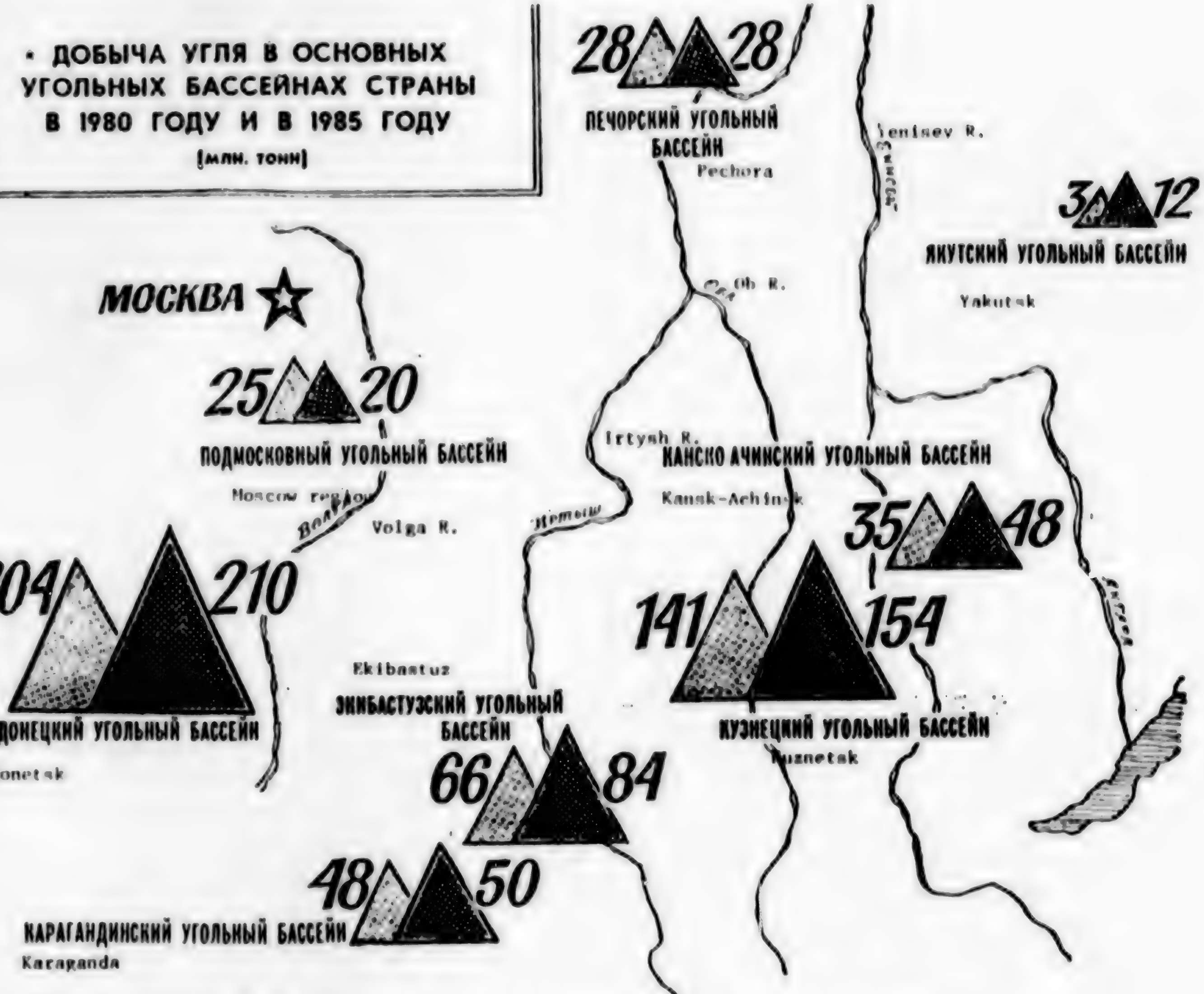
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ПЕЧОРСКИЙ УГОЛЬНЫЙ БАССЕЙН
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Moscow region
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Volga R.
Irtysh R.
Иртыш
КАНСКО АЧИНСКИЙ УГОЛЬНЫЙ БАССЕЙН
Kansk-Achinsk
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Ангара
Ekibastuz
ЭКИБАСТУЗСКИЙ УГОЛЬНЫЙ БАССЕЙН
КУЗНЕЦКИЙ УГОЛЬНЫЙ БАССЕЙН
Kuznetsk
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Donetsk
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КАРАГАНДИНСКИЙ УГОЛЬНЫЙ БАССЕЙН
Karaganda

*Coal extractions in the country's major coal basins in 1980 and 1985 (mil. tons)

[Question] What reasons led to the lag in the industry in 1981 behind the five-year plan?

[Answer] Enterprises of the UkSSR Minugleprom [Ministry of the Coal Industry], for example, had a shortfall of over 12 million tons.

The basic reasons for serious disruptions in the operation of the industry were long-term lags in capital construction, deterioration of geological mining conditions and insufficient development of the working face front. Thus, at the end of last year, the UkSSR Munugleprom lacked 61 longwalls; Kuzbass -- 27; and Karaganda -- 12.To this should be added the unsatisfactory utilization of the available working face front,and the partial loading of the mechanized complexes. The loading average for the industry at a working stope decreased by 15 tons per day. Due to these and other shortcomings in the organization of labor and production, we suffer large losses.

[Question] What are the plans for improving the industry as a whole and individual associations and enterprises?

[Answer] First of all, we are mobilizing efforts to implement the directives of the November (1981) Plenum of the Central Committee of the CPSU, problems posed by Comrade L.I. Brezhnev at the Plenum, as well as the decrees of the Central Committee of the CPSU and the USSR Council of Ministers on accelerating reequipment of mines and developing strip mining.

The timely reconstruction of the working face front depends on the acceleration of preparatory mining work. For this purpose, the ministry adopted a number of measures, developed and implemented schedules to prepare new longwalls, and deliver and install equipment in them. By the end of 1982, it is planned to increase combine tunneling to 41.2 percent. New equipment will be brought to the mines that will reduce manual labor considerably. The volume of metal supports for preparatory drifts will increase.

The realization of the contemplated measures will make it possible to create a stable working face front for the mining brigades. A goal is set to provide for the best utilization of mechanized complexes and increased loading on the comprehensively mechanized working face stope. In the current year, it is planned to obtain from such stopes 280 million tons of coal, i.e., 70 percent of all underground mining. Machine builders will start to deliver KM-103 complexes for working thin seams under complicated geological mining conditions. There is an increase in the output of 2UKP and OKP-17 complexes needed for thick seams with roofs difficult to control.

This year, it is planned, in active mines of Donbass alone, to complete the construction of 58 galleries, dig 18 vertical shafts, install 48 blowers for main ventilation, six stationary refrigerator installations, and to complete work in four mines to improve surface complexes. A great amount of equipment will be allotted to the UkSSR Minugleprom associations.

One of our special concerns is developing the progressive strip method. In a year it is planned to increase the strip mining volume from 911 million to one billion cubic meters. At the "Neryungrinskiy" strip mine ("Yakutugol'" Association) 44 million cubic meters of overburden rocks will be moved -- double that in 1981. The machine pool at the pits will be supplemented by new rotary excavators, mechanical shovels and draglines, and 180-ton dump trucks.

[Question] The tone of competition in mines is set by workers producing a "thousand tons." What does the ministry do to disseminate their experience?

[Answer] Last year, due to high organization of labor in comprehensively mechanized longwalls, the skill of the workers, the clear-cut interaction with engineering services, competition leaders -- collectives of eight brigades and sections -- attained the million-ton goal of coal mining. I will name these brigades. They are headed by M. Chikh, K. Markelov, P. Frolov, M. Roshetnikov and N. Skrypnik. A million tons each were produced by sections headed by P. Yermakov, A. Salamatin and I. Strel'chenko. Over 400 mining brigades regularly mined 1000 and more tons of coal per day.

Early this year, the USSR Minugleprom Board and the Central Committee of the industrial trade union approved the initiative of leading mining and tunneling brigades which adopted high socialist obligations and appealed to all workers in the industry to stand the shock watch in honor of the 60th Anniversary of the formation of the USSR, and fulfill the tasks for 1982. By introducing leading experience we must increase the number of mine brigades that produce 1000 or more tons of coal daily to at least 500; high speed tunneling birgades -- to 600; and high productivity excavator and locomotive brigades -- to 900. In this I see a great reserve in the development of preparatory work and an increase in coal production both underground and in open cuts.

[Question] What preparation was made, and in what order are wage rates and salary increases of coal industry workers being implemented?

[Answer] Large organizational work was done in the industry after the proper decree of the Central Committee of the CPSU and the USSR Council of Ministers was published in October 1981. Special commissions on introducing new wage scales were created at enterprises, construction projects, in associations and combines. Consulting centers were opened everywhere.

The increase in wages covers almost a million and a half workers in the industry. The changeover to new wage scales was implemented first in the Donetsk, Kuznetsk, Pechora, Karaganda and Ekibastuz basins, then in the remaining ones. Primarily, the higher wage rates were specified for underground workers involved directly in mining coal at stopes. Similar higher wages were also given to tunnelers who lay the roads to the coal strata and prepare them for coal extraction. A considerable increase in wages will be received by open-cut workers, especially excavator operators of truck and locomotive brigades.

Salaries are being raised for production leaders, with higher salaries being given to mechanics and power workers in mines, and engineering-technical workers in preparation sections. Production associations and enterprises are now given broader rights in the area of wages. In particular, they may, in agreement with trade union committees, give highly skilled workers occupied in especially important and responsible work, up to 250 rubles per month, and to workers of leading trades who service and repair special equipment, -- up to 300 rubles.

It is planned to introduce widely progressive collective forms of wages for the final product, fulfilling the norm tasks, putting working face stopes into operation ahead of schedule, achieving high annual indicators by brigades and lengthening the periods between repairs for mining equipment.

The maximum sizes of bonuses have been set. They are up to 80 percent of the straight wages for workers mining coking coal and anthracite, up to 60 percent for other underground workers and up to 40 percent for the remaining workers. In individual cases, for more highly productive labor, when average industrial indicators are considerably exceeded for mining, tunneling drifts and productivity of labor, a higher bonus is specified -- up to 100 percent of the piece rate wages. Such bonuses, for example, will be given to brigades mining 400,000 and 500,000 tons of coal and more annually, and to other brigades working at high speeds, as Stakhanovites.

Basically, the system being introduced for payments of bonuses to workers, engineers and technicians provides for two indicators: an increase in the volume of production and an increase in the productivity of labor. Production managers will begin to get bonuses when the production cost plan is achieved and the quality requirements of the product are met. The size of the bonuses differs depending upon the intensity of the plan and the degree of assimilation of production capacities.

An increase in wage rates and salaries is accompanied by some increase in the existing output norms for piecework.

Altogether, since 1 January, the new system of wages was introduced in production in the "Vorkutougol'," "Intaugol'," "Ekibastuzugol'," associations and in 42 individual underground mines, strip mines, enriching factories, as well as construction and transportation organizations. In February it will be introduced in 13 production associations and in March -- in 17 associations for mining coal. Workers in mine building organizations will change over to the new wage rates on the same schedules.

Simultaneously it is important to see to it that a corresponding yield is obtained as measured in tons of mined coal,in meters of passed drifts, cubic meters of overburden rocks and quantity of transported loads, ie.e, wages must mirror the final results.

[Question] What measures on improving the management mechanism were implemented in the industry and what is being planned for 1982? What prevents the introduction of new management methods?

[Answer] Recently an industrial system of progressive technical-economic norms was created. Over 140 methodolgical, instruction and other documents were prepared and supplied to enterprises. Special attention was given to planning technical progress and developing comprehensive programs to solve the most important problems the industry faces.

Last year the coal industry was changed over to the cost accounting system of creating, assimilating and introducing new equipment. We hope to obtain the first results in the very near future.

Of great importance are the new indicators and economic incentives introduced in capital construction which increase the interest of the builders in the final results. Being concerned about increasing the efficiency of capital investments, we are directing 57 percent of the money allotted this year for production construction to modernizing and reequipping coal enterprises. It is planned to build capacities to mine 15.4 million tons of coal. Of these, 77 percent will be strip mines where a yield can be obtained sooner.

In the course of improving management mechanism, progressive forms are being developed of mutual relationships with suppliers of material-equipment resources. Our proposals have been considered and adopted by the USSR Gossnab. Now, by means of direct economic ties, coal industry enterprises will be supplied with twice as much cast iron as in the 10th Five-Year Plan period, and five times more ventilation pipes and high pressure flexible pipes. Direct deliveries of steel cable are increasing considerably, as well as of ferrous metal rolled stock and other materials and products.

At the same time, it should be noted that there are shortcomings in this progressive form of procurement in the development of long-term economic relationships. The main ones are the nonobservance of delivery plans according to the allotted funds. Last year alone, the USSR Minugleprom enterprises had the following delivery shortfalls: 195,000 tons of rolled steel stock ; 646,000 cubic meters of commercial lumber; 259,000 RR ties; many explosion-proof electric motors; and more than a million and a half rubles of spare parts for walking excavators.

Therefore, we request that the USSR Gossnab, the USSR Minchermet [Ministry of Ferrous Metallurgy], the Minlesbumprom [Ministry of Pulp and Paper Industry], the Mintyazhmash [Ministry of Heavy Machinery] and a number of other industries make direct economic relationships more stable, and keep a strict check on the fulfillment of obligations on delivering material-equipment resources allotted to the coal industry.

Table 1

Growth of strip coal mining at the USSR Minugleprom enterprises (in millions of tons)

1980	1981	1982
268	273	281 (plan)

Table 2

Share of coal mining by mechanized complexes in mines
(in percentage of total mining)

1980	1981	1982
67.4	68.8	69.6 (plan)

Table 3

Coal mining in basic coal basins of the country in 1980 and in 1985 (millions of tons)

Coal basin	1980	1985
Moscow	25	20
Donetsk	204	210
Karaganda	48	50
Pechora	28	28
Yakuts	3	12
Kansko-Achinsk	35	48
Kuznetsk	141	154
Ekibastuz	66	84

The production of coal in the 11th Five-Year Plan period in the country as a whole will increase from 716 million tons in 1980 to 775 million tons in 1985. The basic thrust is on the rapid development of coal basins in the east. Powerful fuel-power bases are being created in the eastern regions where the mined coal will be sent primarily to the largest thermal electrical power plants. As shown in Table 3, coal production in the Ekibastuz coal basin will increase from 66 million tons in 1980 to 84 million tons in 1985; in the Kansko-Achinsk -- from 35 to 48 million; in the Yakutsk -- from 3 to 12 million in 1985.

The Donetsk and Kuznetsk basins lead in coal production. In 1985, Donbass must produce 210 tons of coal and Kuzbass -- 154 million tons.

Coal production at other coal basins remains essentially at the present level and will decrease somewhat in the Moscow basin. Here concentration is on modernizing the mines and renovating their equipment base.

It is planned to develop coal production at leading rates by the most efficient strip mining methods on the basis of the wide introduction of progressive technology and mine transporting equipment of large unit capacity. In 1982, strip mining should produce 281 tons of coal.

In the 11th Five-Year Plan period, much new, high productive equipment will be supplied to underground mines and open-cuts, and the working conditions of the mines will improve.

2291
CSO: 1822/109

QUESTIONS ON USSR-WEST EUROPE PIPELINE ANSWERED

Moscow TRUD in Russian 9 Feb 82 pp 1-2

[Article: "Central Construction Site of the Five-Year Plan"]

[Text] Questions of the TRUD readers regarding the Urengoy-west boundary of the USSR gas pipeline are answered by specialists of the USSR Ministry of Construction of Oil and Gas Industry Enterprises.

We are laying the first pipeline from Asia to Europe. What place does the Urengoy-Uzhgorod occupy in the country's economics?

V. Voronin, driver of the sixth bus fleet of Alma-Ata.

Response of S. S. Shchenkov, chief engineer of the all-union association "Soyuzzagrangaz."

The pipeline on which the Urengoy gas will travel to the West European countries is actually not the first transcontinental line. The oil pipeline "Druzhba," the gas pipelines "Bratstvo" and "Soyuz," the systems of gas pipelines USSR-People's Republic of Bulgaria, the superlong intraunion lines of Central Asia-center of the country, Urengoy-Vyngapur-Chelyabinsk-Petrovsk-Novopskov and others have been built and are operating.

This is how one of the central tasks of developing the USSR economy is being solved: intensive involvement in the national economy of the oil and gas resources of the Siberian fields. The acceleration of this process must be significantly influenced by the construction of the export gas pipeline Urengoy-Uzhgorod.

It should be noted that by continually supplying our industry with fuel and energy resources, we have been supplying fuel for a long time to the fraternal countries and to the world market. The export of natural gas to the member countries of CEMA in the last 5 years has tripled. We are selling gas and oil to France, the FRG, Italy, Austria, Finland and other countries. We have long-term agreements with certain firms for exchange of gas for pipes and other equipment.

A contract concluded in Essen (FRG) in November 1981 was not anything basically new. The entire matter lies in the scales of the "gas-pipes" exchange which was immediately called by the journalists the "deal of the century." The contract stipulates the shipment from the USSR to the FRG of over 10.5 billion m^3 of natural gas annually for 25 years. The FRG as compensation must supply us with large diameter pipes, which together with the pipes and equipment of other countries will allow us to drastically accelerate the development of a unified transport system of gas supply of the country. A similar agreement was recently signed with France.

The TRUD readers apparently know that our industry produces these pipes. We also make the equipment for laying them, the compressor equipment and all the rest. However, the program for development of the pipeline transport is so great and compressed in time that it is expedient to partially use imported materials and equipment.

It remains to build over 40,000 km of gas pipelines alone in 1981-1985. Every thousand kilometers is a million tons of pipes 1,420 mm in diameter. It is also necessary to guarantee construction of oil pipelines, the needs of the chemical industry, land reclamation and hundreds of other pipe consumers. Thus, by concluding the "deal of the century," we solved one of the strategic tasks for developing the economy. Understanding this, certain circles in the United States have done everything possible to break off the contract. They have suggested the most fantastic projects for supplying Europe with gas from Alaska. However, in this situation the reliability of the partner is evaluated much higher than the tendency towards fantasies. The business reliability of the Soviet Union does not need recommendations or verification.

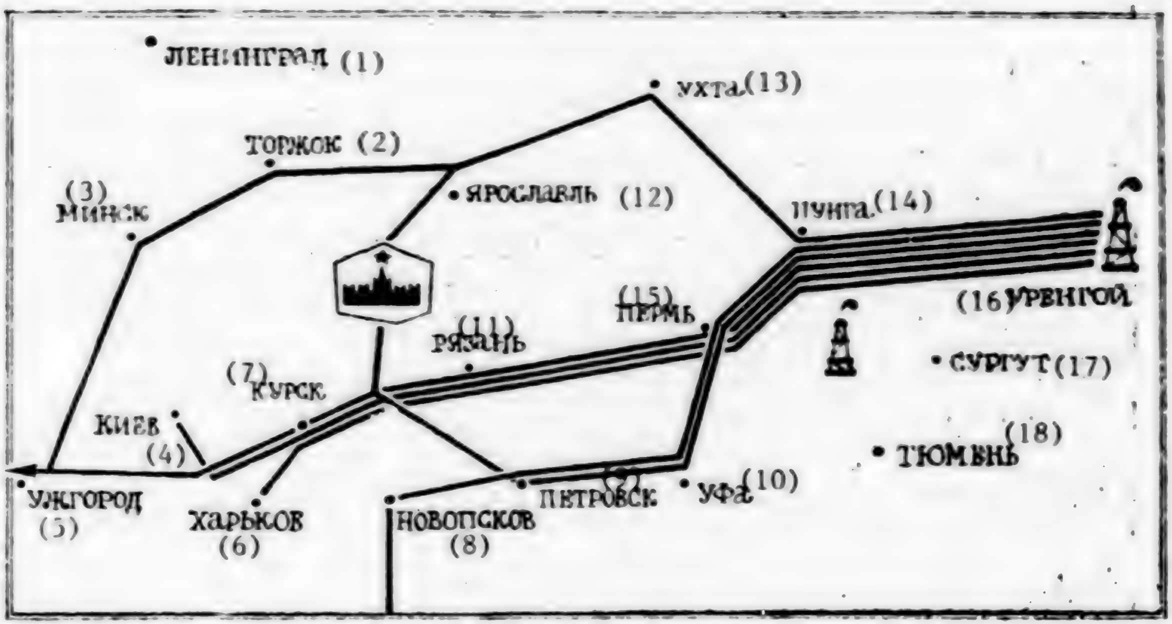
What is the distinguishing feature of an Urengoy-Uzhgorod gas pipeline from others in a technical respect? Who designed it? Which organizations are building it, and what has been successfully done as of now? I have read that there are high pressure pipes: multiple-layer, frame and others. Will they be used for this pipeline?

A. Morev, welder of the plant imeni Kolyushchenko, Chelyabinsk.

Response of K. I. Zaytsev, deputy director of the All-Union Scientific Research Institute of Construction of Main Pipelines.

The project, which by the way, has not yet been worked out in all the details, was drawn up by the Donetsk Institute YuzhNIIGiprogaz. Organizations of our ministry will build the gas pipeline. It is true that not a single meter of pipe has been laid or a single compressor station built. The builders are now making clearings in the taiga, laying temporary roads, selecting the sites for settlements, in a word, conducting engineering preparation.

The gas pipeline has been designed, as already said, of large diameter pipes, 1,420 mm, and is rated for pressure of 75 atmospheres. These are hardly ordinary characteristics, although we have laid pipelines of this class, in length they comprise only 11 percent of the unified system of gas supply. Fifty percent is freight turnover. This ratio apparently indicates fairly eloquently the progressiveness of the planned decisions.



Key:

1. Leningrad
2. Torzhok
3. Minsk
4. Kiev
5. Uzhgorod
6. Khar'kov
7. Kursk
8. Novopskov
9. Petrovsk
10. Ufa
11. Ryazan'
12. Yaroslavl'
13. Ukhta
14. Punga
15. Perm'
16. Urengoy
17. Surgut
18. Tyumen'

There is yet another innovation which does not have an analog: in one so-called technological corridor, six lines of pipes will be laid at once. Previously they would have been designed each in their own direction! One of them goes to the western boundary of the USSR, the others go to different populated areas of the country.

These multiple branches primarily reduce the working time, since there will be fewer movements of equipment and people. The construction will become more effective for it will be possible to organize permanent production lines. The workers, having been accustomed to the local conditions, will work more productively. The actual working conditions, level of daily life and comfort will be improved and so forth.

Control of the operating pattern of the routes will become more flexible and it will become possible to drastically increase the output of the energy channels. Fewer service personnel, transport, repair bases and other equipment will be required.

Finally, there is another technical innovation. This is what the reader wrote about, multiple-layer pipes. They are good because they are made of simple low-alloy steel which withstands fairly high pressure because of the structural features. These pipes have been tested at the test site and on the route near Boyarka. The Vyksa metallurgical and Khartsyzsk pipe plants are mastering their production.

In the first 6 months of this year it is planned to build an experimental gas pipeline section in West Siberia (only 3 km) made of these pipes. The multiple -layer pipes will be used in limited scope on the gas pipeline Urengoy-western boundary.

The appropriate equipment is needed to lay and install 1.5 meter pipes. What machines are going to be used to construct the Urengoy-Uzhgorod gas pipeline, and who will supply them?

V. Shelest, rubber vulcanizer of the production association "Dneproshina."

Response of V. Ye. Lapshin, head of the main administration for mechanization of construction-installation work.

One can say without exaggeration that the "deal of the century" has called to life the "construction site of the century." The problem here is not only and not so much the diameter of the pipes. A pipeline about 5,000 km long needs to be built in 2 years alone, in 1984 the line must be opened. In this case we have to cross regions of permafrost, swamps, rivers, reservoirs and mountain passes. We cannot get by, of course, without the appropriate equipment for these conditions. The ministry has set up a special complex of machines, practically for all work on the pipeline laying: excavating, pipe-transport, load-lifting, clearing, insulating, pipe-welding and so forth.

Rotary excavators are used to dig trenches for the pipelines. Powerful pipe length carriers with high passability haul the pipes. Where there are no roads and there are swamps, the freight is transported on caterpillar swamp vehicles "Tyumen'." Equipment is being created on the basis of this machine for laying pipelines on swampy sections in the summer.

A family of pipe layers with lifting capacity from 6.3 to 50 T was created in the last five-year plan. A converted hydraulic pipe layer based on the tractor of the Cheboksary plant is available for building large diameter pipelines.

It is impossible to relate about all the machines which the builders of the pipeline are armed with. I will therefore mention only several words about the welding equipment which occupies a very noticeable place in the set of machines. We weld half of all the pipe butt joints by automatic machines. Industrial tests were recently completed on the set "Sever-1" for electric contact welding of pipes 1,420 mm in diameter under Siberian conditions. The welding method has been developed by the Ukrainian scientists from the Institute imeni Paton. It makes it possible to weld up to seven butt joints per hour with high work quality.

"Sever-1" has rapidly become popular in the world. Orders for it have come from many foreign countries, firms of the United States and Japan have acquired licenses.

For a complete picture we will merely mention that there is other pipe-bending equipment, equipment for gamma-and x-ray photographic control of welded seams, hydraulic tests of pipelines, laying pipes on bottoms of rivers and reservoirs, machines for building junctions under roads and railroads, and much more.

Equipment of domestic production is mainly used at construction of the pipeline. It is produced by plants of the Ministry of Construction of Oil and Gas Industry Enterprises and certain other ministries. We must obtain some of the machines from foreign firms. For example, we were waiting for pipe layers from the United States. Some of them actually arrived, then, because of the political tricks of the U. S. president, the shipments were stopped.

What can one say here? One can only say that this type of behavior is not reliable for business people. The system of gas pipelines will nevertheless be built. With the American equipment or without it, it will be built. It is needed by our national economy and we will do it.

How will the labor of the builders be organized on such a giant construction site? It is common knowledge that in constructing VAZ [Volga automobile plant], KamAZ [Kama automobile plant], the Sayano-Shushenskiy GES and other facilities of this scale, teams from many of our republics and even from other socialist countries participated. Is it planned to involve these forces at the construction of the Urengoy-west boundary pipeline?

V. Korshunov, brigade foreman of turners of the ship building plant "KAMA," Perm'.

Response of M. A. Vasil'yeva, head of the administration of construction of oil and gas facilities abroad and foreign relations.

It is first of all necessary to note that the system of gas pipelines from West Siberia is set apart in scales even among such construction sites as VAZ, KamAZ and even BAM [Baykal-Amur Trunkline]: the volume of capital investments here is greater. And the schedules? They are compressed to the limit. Moreover, we have been faced with the task of opening each gas pipeline for the rated output in a year.

Our construction sites of the 11th Five-Year Plan generally do not have analogs. Before 1985 we have to fulfill work which is greater in volume than during the previous 15 years. It is impossible to do this without industrialization of construction, introduction of continuous line technology, installation of pipelines, compressor stations and other facilities made of blocks of increased plant preparedness.

Realization of this program has already begun and will be continued during construction of the Urengoy-Uzhgorod gas pipeline. We have already spoken about the unified technological corridor and set of machines. These are also the conditions for creating technological lines. They allow us to organize our own type of plant on wheels which should manufacture the finished product, pipeline sections, with the same regularity as other enterprises make machines or turbines.

Nevertheless, we of course cannot do without involvement of new workers. The Leninist Komsomol has proclaimed the gas pipelines to be an all-union shock Komsomol construction site. This means that teams of young builders will come to this most important facility every year.

Soviet organizations will mainly build gas trunklines. Participation of builders of interested member countries of CEMA and Yugoslavia is proposed on individual sections of the European sector of the USSR. Installers from the GDR will apparently be involved in building gas pipeline facilities, and Yugoslavian organizations will probably be involved in the compressor stations. We will be able to state more precisely after conclusion of agreements on cooperation.

I am a mason by profession, but I can do carpentry, concreting, and plastering. Would there be work for me at the construction of the gas pipeline? If yes, then under what conditions, I have in mind not only wages, but also the place of work, daily life, and the possibility of improving skill.

Ye. Makagon, Romny of the Sumskaya Oblast.

Response of V. F. Matusyak, head of the administration of working teams and daily life.

Even the briefest list of occupations needed in building the system of gas pipelines would take up a lot of space. We need workers of practically all construction specialties, and primarily electric welders, heavy machine drivers, bulldozer operators, excavators, general machine operators. Construction of housing, compressor and pumping stations and other facilities requires masons, carpenters, plasterers and so forth.

The ministry is preparing working teams. The three technical schools and the 55 educational-course kombinats have trained 130,000 workers in the last five-year plan, and over 100,000 have increased their qualification. Schools of leading work methods are operating in the sector. Mobile groups of teachers directly on the route help the workers to improve their skill, and to master related specialties. However, one can only receive direction for studies after entering one of the ministry organizations. In this case, a person who is sent for training is paid a scholarship or maintains the average wages.

The pipeline route will intersect 27 republics and oblasts, including the Sumskaya Oblast. It is planned to develop over 50 residential cities with a fairly high level of comfort under field conditions. One can state that for the first time in the practice of building pipelines, the problem of living, recreation, physical culture exercises and athletics will be comprehensively solved.

The work of the economic leaders in the sector is currently assessed not only by the indicators of fulfillment of the plan, but also with regard for the working and living conditions, the level of ideological-educational work, and the state of discipline in the collective. All of these questions are examined at the stage of developing the draft for organization of work, which often includes a section on ideological-political support.

The plants of the ministry made 6,850 comfortable all-metal house trailers, 2,800 watchman complexes, 500 therapeutic-preventive complexes, and sauna baths in the last five-year plan. The cities near the routes (even the advance) have everything, including cafeterias, sports arenas, vegetable storage and so forth. The level of comfort is indicated by the problems that are now being solved by the ministry. First of all, a sports complex has been designed and made for the cities near the routes. It consists of a hall for athletic games and gymnastic exercises, a swimming pool 12x7 m in size and showers. The output of panels for these complexes will be put on a production line in the near future.

Secondly, a plant has been built for production of special watchman buses for the northern routes. The bus has front -wheel drive, is equipped with additional windows and the temperature in the cab does not drop below 15 degrees of heat even in 60 degree frosts. If there is an emergency in the machine, a plus (about 8 degrees) temperature is maintained for more than 5 hours.

The ministry is also building stationary cities. About a half million square meters of housing and many dormitories are erected annually. There is a sufficiently broad network of preschool institutions which educate 55,000 children.

Finally, the question which in life occupies far from the last place, wages. It is clear that different people in different natural conditions will earn different amounts. The average wages of workers in the sector last year was over R 280.

If these conditions catch someone's fancy and he wants to participate in construction of the Urengoy-west boundary gas pipeline or other facilities, he should address the personnel departments of the organizations of the ministry at the following addresses: 252059, Kiev, ul. Artema, 77, Glavukrneftagazstroy; 101854, Moscow, ul. Kirova, 22, Glavtruboprovodstroy; 105264, Moscow, 5-ya Parkovaya ul., 46, Soyuzgazpromstroy; 450008, Ufa-8, ul. Tsuryupy, 13, Glavvostoktruboprovodstroy; 423400, Al'met'yevsk, ul. Gagarina, 10, association "Tatneftestroy."

The West Siberian-west boundary gas pipeline has the right to be called the construction site of the century not only because of the scales and the work schedules. By solving one of the strategic tasks of our national economy, it simultaneously is an example of fruitful, mutually advantageous international cooperation. What could be more important in our troubled age!

9035
CSO: 1822/111

FUELS

FUTURE OF URENGOY GAS FIELD EXAMINED

Leningrad LENINGRADSKAYA PRAVDA in Russian 12 Feb 82 p 1

[Article by S. Mal'tsev: "Urengoy: What is on the Horizon?"]

[Text] Almost the entire increase in gas extraction in the next 5 years in our country will be obtained because of Urengoy. Of the national extraction of 600-640 billion m^3 in 1985, this field will provide 250-270 billion m^3. Another seven transcontinental pipelines must be laid in 5 years to transport this enormous quantity of gas from West Siberia.

The Urengoy gas of today (last year almost 50 billion m^3 were extracted here) goes to the European sector of the USSR and to the plants of the Urals on five pipelines with total length of over 12,000 km. An intercontinental gas trunkline to Moscow will be opened this year. It is 2,800 km long. The first thousand kilometers of pipes have already been welded at the construction of the next giant route Urengoy-Petrovsk (European sector of the USSR). It is 2,740 km long. Each gas pipeline almost 1.5 m in diameter with pressure of 75 atmospheres carries an enormous quantity of energy, more than all the hydroelectric power plants of the largest Siberian rivers of the Yenisey and Angara generate together.

The area of the Urengoy field in the northern Tyumenskaya Oblast is 6,000 km^2. Its reserves exceed 7.5 trillion m^3 of first-grade gas with a methanol content of 99 percent.

A city of gas extractors has grown up next to the field, Novyy Urengoy with all the standard conveniences. A railroad over 1,500 km long has been laid from Tyumen' to here. The local airport receives any type of airplane.

One of the most complicated problems of developing the region is supplying it with electricity. Hundreds of small power plants are currently operating in Urengoy. Diesel fuel for them is shipped in thousands of kilometers. This requires enormous expenditures, a large number of service personnel, and the energy supply is very unstable. Soon the small power plants will be eliminated: construction is being completed of a powerful transmission line over 600 km long from Surgut. The largest power plant in the Siberian north is located here. The drilling units of the field will then be switched to electric drive, and drilling of the new wells will be significantly accelerated. In order to definitively solve the problem of reliable electricity supply for the field, a powerful power plant is being built here. Gas, of course, will be its fuel.

But will not the Urengoy reserves dry up at the end of this century? The scientists are convinced that the structure of this field is unique and is similar to a layered pastry. Academician Andrey Trofimuk, first deputy chairman of the Siberian department of the USSR Academy of Sciences, director of the Institute of Geology and Geophysics believes that the deep levels of the storehouse contain under the gas deposits, oil and gas condensate, a valuable raw material for the petrochemical industry. In order to verify the hypotheses of the scientists, drilling of a superdeep exploratory well will soon begin here. It will provide an accurate answer to the question of what resources the depths of Urengoy are still hiding.

9035
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AKTYUBINSKAYA OBLAST TOUTED AS HIGHLY PROMISING OIL-AND-GAS REGION

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 14 Jan 82 p 1

[Interview with Aktyubneftegazgeologiya general director N. Gubkin by A. Gurkin (Aktyubinsk): "Oil Gushers Are Being Struck"]

> [Text] At the end of last year a geological production association for oil and gas exploration--Aktyubneftegazgeologiya [Association for Oil and Gas Geological Exploration in Aktyubinskaya Oblast]--was created in Aktyubinsk. Our correspondent asked its general director, N. Gubkin, to state what the association's missions and tasks are.

"West Kazakhstan has long been considered an oil district. But its importance in the All-Union scale grew in the last decade because of the introduction of Mangyshlakskaya Oblast oilfields into operation. Oil recovery in the steppe and desert grew 10-fold, and explored reserves of the 'black gold' increased a hundredfold. But meanwhile, not by far is this everything that the earth conceals. There is every reason for asserting that in the next few years West Kazakhstan will be able to increase greatly the recovery of this most valuable raw material, mainly because of Aktyubinskaya Oblast.

"Let's take a look at the map for the prospects for petroliferousness of the Caspian depression. Eight oblasts are located there, among which are such traditional well-known oil producers as Mangyshlakskaya, Orenburgskaya, Volgogradskaya, Gur'yevskaya, Saratovskaya and Astrakhanskaya Oblasts. Aktyubinskaya Oblast has a special place in this constellation. Occupying the eastern part of the depression, it concentrates within its lands a substantial share of the whole region's promising reserves. These reserves have been confirmed by the USSR Ministry of Geology, and their realness has been confirmed persuasively by prospecting by Aktyubinsk's explorers. The discovery in 1978 of the Zhanazhol field was indeed an event. It confirmed exhaustively the prognoses of many Soviet scientists that large amounts of crude were present in the so-called subsalt rocks that lie at depths of 2,800 meters and more. Last year brought two more discoveries. As a result of further exploration, a second petroliferous formation was established at Zhanazhol. And there is more. Basically new geological data about assessment of the petroliferousness of subsalt deposits at the neighboring Kenkiyak field also were obtained. Thus, realistic contours for a new oil-producing region within our oblast are being sketched today. Altogether, seven oil and one gas field have been discovered and explored within its territory.

"In this connection, an association has been established in Aktyubinsk, which includes the Aktyubinsk, Kenkiyak, Ural and Yuzhno-Kazakhstan oil exploration expeditions, as well as an expedition for the testing of holes, construction and installing administrations, supply bases, and a number of parties and detachments. The association should assimilate about 70 million rubles this year on the lands of three oblasts--Aktyubinskaya, Ural'skaya and Chimkentskaya.

"In reporting to the Fourth Plenum of the Kazakhstan Communist Party Central Committee, CPSU Central Committee Politburo member and First Secretary of the Kazakhstan Communist Party Central Committee D. A. Kunayev stated: 'The oil and gas industry should be guided by well-known party and government decrees about developing oil and gas recovery in West Kazakhstan, where large-scale measures have been contemplated. In the shortest possible time the Zhanazhol, Tengiz and Karachaganak fields must be assimilated and a new oil-producing region created in Aktyubinskaya Oblast.'

"The tasks set before us are truly enormous. During this five-year plan we are to explore reserves of oil that exceed severalfold those prepared during all the preceding five-year plan periods put together. But we are confident that, with the help of the oblast's party organization, we shall carry out successfully that which has been planned."

11409
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CONSTRUCTION LAG SLOWS BUILDUP OF TURKMEN GAS FIELDS

Ashkhabad TURKMENSKAYA ISKRA in Russian 5 Mar 82 p 2

[Article by N. Sosnina: "Plans That Are Built...on Sand"]

[Text] Improve the economic mechanism.

The collectives of two large associations--Turkmengazprom [Turkmen Gas Industry Production Association] and Turkmenneftegazstroy [Association for the Construction of Oil and Gas Industry Enterprises in the Turkmen SSR]--are jointly solving an important problem that the 26th CPSU Congress defined: to bring the amount of the republic's gas recovery up to 81-83 billion cubic meters by the end of the 11th Five-Year Plan.

Each of them is solving it, of course, with its own resources. But the exploration of structures, the drilling of production wells, and the erection of gas facilities and the assimilation thereof are elements of a single fuel production line. And breakdowns in any of these elements are fraught with grave consequences.

Gas-recovery workers sensed the first worrisome symptoms in the second half of the 1970's. At that time Shatlyk was gaining strength, and new field structures were going up at Kirpichli and Beurdeshik. The recovery of Turkmen gas was increasing. But the millions of cubic meters above the plan were being gained with increasing difficulty, and ever greater efforts by the operators were required. The fact is that the reserves of the fields put into operation were not very rich and were not supporting the rate of growth in recovery prescribed for Turkmengazprom. And previously mastered fields were aging.

At Achak, Naip and Gugurtli the formations were "getting tired," and the pressure was dropping sharply. It was obvious that the flow of fuel from the northern Karakumy was shrinking. There was only one way to stabilize recovery: to erect booster compressor stations, cooling departments and wells in integrated fashion and to use the useful minerals completely. Actually, VPO [All-Union Production Association] Turkmengazprom, especially its Achakgazdobycha [Achak Gas-Recovery Administration] subunits, had entered a qualitatively different and difficult period.

Life brought serious revisions also in the work of the Turkmenneftegazstroy Association. It became necessary to convert from the industrialized method of erecting pipelines and integrated gas-treatment installations in large-module versions, that is, with a high degree of assembly and readiness supplied by the factory, to facilities that are more labor- and materials-intensive. The requirement for quarried materials and prefabricated reinforced-concrete, metal and wooden structure rose sharply.

And now their weak link--the absence of a production base in the republic for gas-industry construction--began to make itself felt. Turkmenneftegazstroy had at its disposal a low-capability Stroydetal' [Combine for the Production of Constructional Items], which had been inherited from the oilfield workers, and a small plant for large-panel housing construction, which, during the whole 10th Five-Year Plan produced 22,000 cubic meters of reinforced-concrete items per year instead of 225,000. This is intolerably small, when it is considered that one trust, Naipgazstroy [Trust for the Construction of Gas Industry Facilities at the Naip Gas Field], needs severalfold more than that.

The association's supervisors sought a way out. They took out contracts at construction projects of neighboring republics--Uzbekistan and Kazakhstan, specifying beforehand the terms for the supplying of materials and equipment. They managed to place orders at construction-industry enterprises in the republic and outside it. But USSR Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] plants failed to meet the deadlines for shipments for which deliveries were not compulsory. Also, Turkmen SSR refused to accept orders, pleading the worn condition of its base.

And there was a clap of thunder. Plans to develop the fuel industry came into contradiction with the actual potential for their material realization. The builders did not concur with the programs put forth by the gas-recovery workers, and they insisted on lesser amounts of work; confusion emerged in the plans. But even the tasks that were understated (below what was necessary) were not fulfilled. Naipgazstroy Trust failed in 1981 to introduce the second phase of the booster compressor station at Achak, the cooling department and sulfur-scrubbing installations at Ugurtli, and housing and social and cultural facilities at Gaz-Achak.

And Turkmenneftegazstroy, which previously had been a leader, found itself among the laggards. How to explain that a collective that had assimilated hundreds of millions of rubles during the Ninth and 10th Five-Year Plans did not spend even one ruble to erect new construction-industry enterprises or to increase the capacity of those existing?

One must not think that the importance of the problem was not raised in the association. They understood. I have in front of me a thick file folder of the correspondence of Turkmen gas-industry builders with Union Minneftegazstroy and Mingazprom. The supervisors of these agencies were told about the disproportions in the republic's gas industry. The association requested funds for in-house construction and justified their request with persuasive numerical computations.

The Ministry of Construction of Petroleum and Gas Industry Enterprises made promises. Moreover, from time to time instructions were issued that required "development of a base for gas-industry construction in Turkmenistan." But the instructions just remained on paper. Under various pretexts, despite the commonality of the missions and tasks, the subsidizing of interdependent workers in Mingazprom was rejected. However, plans that were released to them for the recovery of the blue fuel became increasingly strenuous. VPO Turkmengazprom carried them out through the intensive operation of Shatlyk and other fields, without, at the same time, aging them.

Under these circumstances the position of the outside observer that Turkmen Gosplan engaged, who did not show due concern about the development of the gas-industry construction base, is hardly justified. And the poor management of the Turkmenneftegazstroy Association is entirely incomprehensible. It began to try to create its own enterprises only in 1976. It should have thought about the prospects far earlier--when the branch was being born.

Only on the threshold of the 11th Five-Year Plan did association chief E. A. Runenkov manage to finance work on the design, rebuilding and construction of enterprises for producing prefabricated reinforced concrete and other materials. At best they will produce products in 1985. And what are the workers at sites of the Zaunguz fields to do today and during the next 4 years?

The orphaned bare footings in Gugurtli were turning black. In 3 days the brigade of advanced builder Nikolay Pololin had erected structure for which they had been waiting for 3 years. And it stopped. Lacking were 1,140 cubic meters of columns and IIS-04 series beams, but only Turkmen SSR Minstroy enterprises can give a hand. Workers of the Takhiatash plant of the branch were in arrears for 300 tons of metal structure. And a set of three-section cooling towers. And there was nowhere to place the set of three-section cooling towers. It had not been decided who would undertake the manufacture of prefabricated reinforced concrete for facilities at the new Severnyy Balkui field.

And the construction projects, let us note, are to be started up ahead of other facilities. The task of erecting a booster compressor station at Shatlyk also has been drawing near in earnest. The problem of provisioning of materials and equipment has become painfully severe, and it must be resolved with the association's forces, with a disregard for agency barriers. Turkmenistan's gas-industry workers have a right to count on the attention of and help from not only Union agencies but also those of the republic, primarily Turkmen SSR's Gosplan.

11409
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SOCIALIST OBLIGATIONS OF COAL MINERS

Moscow TRUD in Russian 25 Feb 82 pp 2-3 [Special Edition]

[Article by O. Kuznetsov, editor of the Socialist Competition Department of TRUD: "Miners'Valor," Socialist competition contract, "Labor" prize]

[Text] Ten years ago socialist competition was developing in the country for a worthy reception for the 50th Anniversary of the formation of the USSR. At the All-Union "Labor" Seminar in Donetsk, where the most advanced experience of coal mining was studied, sixteen brigades signed a contract to compete for an annual production of 500,000 tons of fuel each. Thus, the "500,000 ton" movement was born.

And here is a new contract, signed on the shock labor watch in honor of the 60th Anniversary of the formation of the USSR. Already 92 collectives are participating.

But first, about how the contract was fulfilled, signed by ninety leading collectives of mining brigades and section in the first year of the five-year plan period. If the totals are taken as a whole, they are gratifying. The summary obligations were exceeded by eleven plus million tons. It was as if several large new mines had begun operating in the country.

Seventy-three collectives achieved a record of 500,000 tons. Eight collectives: Petr Yermakov's from the "Vorgashorskaya" Mine in Vorkuta, Mikhail Chikh's from the "Mayskaya" Mine in Rostov, Mikhal Reshetnikov's from the "Zyryanovskaya" Mine in Kuznetsk,Petr Frolov's from the "Raspadnaya" Mine in Kuznetsk, Kirill Markelov's from the Mine imeni 50th Anniversary of October from Gukov, Vladimir Marchenko's from the Mikhaylovskaya" mine in Karaganda, Nikolay Skrypnik's from the Mine imeni Frunze in Voroshilovgrad and Anatoly Polishchuk's "Trudovskaya" Mine in Donetsk, produced a million and more tons each.

It is pleasing that the "500,000 ton" regiment was augmented by eighteen collectives, following their example, confidently winning a cherished victory.

However, the victory total could have been so much greater. Words cannot be left out of a song: seventeen collectives did not cope with the load of 500,000 tons, while twenty-nine -- were unable to fulfill their obligations (true, very high ones).

The miners who were left behind the victory line took their failure very hard. They did everything possible to keep their word. But far from everything was done by those whose direct duty it was to insure their success.

We are speaking again about organizational and engineering miscalculations of mine services, about shortcomings of equipment-technological provision, and about the lag in the preparation of the working face front. TRUD constantly pointed out these facts in quarterly reviews according to the summaries of the work of the contract participants. However, it is again necessary to repeat today that precisely it was the late preparation of new longwalls that knocked out of the running the brigades of P. Mar'yanenko, of Mine imeni Astronauts at Rovny and G. Abramov of Mine imeni 25th Party Congress at the Makeyevskaya Mine Administration, sections of A. Kan of the "Maykudukskaya" Mine in Karaganda, V. Turikovich of Mine imeni Kostenko (in the same basin), the famous brigade of V. Murzenko at the "Krasnyy Partizan" Mine at Voroshilovgrad and I. Safronov's brigade at the "Pervomayskaya" Mine at Severokuznetsk.

This is not the first year that we have had to speak about the lateness, low quality, insufficient authenticity of geological forecasts of the worked coal fields. And yet, it is precisely by these forecasts that the system for preparation and working the longwalls, the type of mechanization method for controlling roofs and the technology of coal extraction is selected. Errors or negligence on the part of specialists in analyzing mining conditions result in additional difficulties for the competing mining collectives.

And now, too, the discrepancy between the equipment used and the geological mining conditions has led to the disruption in fulfilling the obligations of V. Devyatko's brigade at the "Raspadskaya" Mine and V. Belik's section and the Mine imeni Gorbachev at Karaganda. Twice, during the year, in working the longwall, it was necessary to overcome zones of so-called "erosion" of the seam by N. Shkulyarenko's brigade at the Mine imeni 25th Party Congress of the "Ukrzapadugol'" Association, although such prospects were not anticipated. S. Molchanov's section lost much time at the "Promyshlennaya" Mine in changing over the ventilation crosscut of the longwall.

One of the best Kuznetsk brigades of V. Zhukov at the "Polysayevskaya" Mine were not able to fulfill high obligations either due to crude engineering miscalculations. During the year, machine operators had to cross three old drifts passing from longwall to longwall three times, operating an old complex which had already mined almost two million tons of fuel without capital repairs. G. Ivanov's brigade worked almost two months at the Mine imeni V. I. Lenin of the "Yuzkuzbassugol'" Association under a sharply increased flow of water from a seam lying above.

In each of the cases, specialists and engineering services were supposed to foresee everything, calculate everything beforehand, determine concrete measures of technical and organizational order and schedules for their implementation to reduce to a minimum the effect of geological mining and other conditions, to insure high productivity of labor of the competing workers.

True, mine geology is treacherous and with each year, as the top seams are worked out, the mining is changed to deeper levels, it will become more complicated, bringing new "surprises." But they must be met with farsightedness and well-thought-out action by production leaders of the engineering services. Let us say, the way it is being done at the "Nagornaya" Mine in Kuznetsk of the "Gidrougol'" Production Association (V. Yerpylev, director). The collective of this mine is finishing off old coal fields. The seams become thinner and thinner. And yet, all three working face brigades of R. Stakheyev, Heroes of Socialist Labor Ye. Drozdetskiy and A. Nikitin -- produce 600,000 tons each year after year. In spite of everything, and various "surprises" of mine geology, they confidently cope with the plans and their obligations!

The situation is that skill, shock labor of miners and their enthusiasm at the "Nagornaya" are strengthened by clear-cut, literate, long-range estimates and the actions of the engineering-technical service, and constant care in the timely and high-grade preparation of the working face front. The labor of tunnelers is mechanized to a maximum. Also much is due to the creativity of inventors and innovators. Repairs of working face complexes are very rapid. Workers, together with engineers and mine managers, participate actively in discussing mining plans; they are well aware of the prospects and conditions that they will meet.

This is the way it should be everywhere. However, some association managers and territorial trade union committees are passive observers, while "500,000 ton" collectives suffer great difficulties. This reproach is meant primarily for managers of the "Chelyabinskugol'" Association (A. Druzhinin, director of production) and the Chelyabinsk territorial trade union committee (A. Kryukov, chairman), who essentially left to its fate the only "500,000 ton" collective in their association that got into a difficult situation last year. Yet, this collective mined a record 500,000 tons of coal annually three times. Such reproaches may be fully addressed to managers of "Severokuzbassugol'," "Sverdlovantratsit," "Intaugol'" and corresponding territorial trade union committees.

Facts are known when the administration whose brigades and sections lag, attempt to straighten out the situation not by literate, efficient and comprehensive help, but by replacing brigade leaders or section chiefs. Thus, at the "Stepnaya" Mine in Karaganda and at mine imeni RKKA in Dobropol'ye, section chiefs were replaced twice during the year in "500,000 ton" collectives.

This is an unsuitable practice! It does not facilitate at all the success of that huge project that is being created by the "500,000 ton" collectives. At the recently held 13th Trade Union Congress of the Coal Industry Workers, the following was stated: "The Central Committee of the trade union, having analyzed the progress of fulfilling obligations adopted by labor collectives and the results of the "'500,000 ton" contract operation, criticized repeatedly a number of association managers and trade union committees that efforts of brigades to utilize, to a maximum, the possibilities of high productivity equipment and exceed their own record achievements, sometimes encounter a barrier of indifference, an inability to look into the future and their efforts fade away due to elementary organizational and engineering confusion. There are frequent cases where, due to the causes mentioned even leaders and initiators of the industrial competition slide into lagging positions. They must fight not so much the caprices of geological mining conditions as the consequences of the irresponsibility of production organizers."

Honestly and directly spoken. As they say, there is nothing here to add or subtract. Yet, perhaps, it is worth adding something anyhow. It is time to move from statements and words (even though sharp ones!) to action. Cannot even the USSR Minugleprom* and the Central Committee of the trade union put an end to this situation and hold those strictly responsible who discredit the main directions of socialist competition in the industry? In fact, participants in the "500,000 ton" movement pose the question about this persistently. This is the way it was at last year's meeting of the "500,000 ton" workers in Moscow, and this is the way it was at the All-Union School of Advanced Experience in the summer of last year. At the 13th trade union congress, famous "500,000 ton" worker, Hero of Socialist Labor and winner of a USSR state bonus, V. Devyatko spoke bitterly:

"Today we were deprived of the possibility (and how we wanted it!) of talking about producing a million tons annually. We adopted an obligation to mine 700,000 tons. We are simply hobbled by a shortage of working face front and low rates of construction installation work. Millions invested in seam preparation produce no yield. Can we reconcile ourselves with this?

Yu. Bronnikov, another famous "500,000 ton" worker from the "Severnaya" Mine at Vorkuta, supported his colleague. The same alarms, the same concern.

It remains to add that letters from miners received
ways about the same thing: not enough working face front, spare parts, pumps, reducers, combines, conveyors; engineering errors, lack of administrative abilities ...

It is necessary to solve those problems immediately which interfere with the development of such important matters as the "500,000 ton" movement. We are talking about comprehensive and rapid help for those who, deeply committed to their truly communist attitude toward labor, took upon themselves an additionally heavy load and responsibility.

Miners are hardy and stubborn people. A witness to this is the new contract of leading workers -- "The contract of ninety-two," which is being published today in our paper. New high goals are outlined and the aspirations to conquer them are present.

We are talking about giving space to the creative energy, to directing and utilizing it better, and creating necessary conditions for high productivity shock labor for the miners.

Last year, when it became known that the USSR 17th trade union congress would be held, leaders of advanced mine "500,000 ton" collectives declared:

"We will work to exceed the tasks daily! In the first quarter of 1982, we will achieve the highest labor productivity and we will make them the record production indicators received at each working place in the process of precongress competition the work norm for the entire second year of the five-year plan period -- the year of the 60th Anniversary of the formation of the USSR."

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*Ministry of the Coal Industry

We will wish success to the guardsmen of the underground levels. Let them also serve us as an example for all workers in the industry in the future.

Contract on Socialist Competition of Ninety-two Collectives of Brigades and Sections for Mining 500,000 Tons and Over of Coal and Shale in the Second Year of the 11th Five-Year Plan Period.

We, the leaders of ninety-two mine collectives, inspired by the decrees of the November (1981) Plenum of the Central Committee of the CPSU, supporting the appeals of chiefs and brigade foremen of mining sections -- delegates to the 13th Congress of the Trade Union of Workers in the Coal Industry to all workers, engineers and technicians in the industry for a worthy reception for the 60th Anniversary of the formation of the USSR, have decided, in the second year of the 11th Five-Year Plan period, to continue what has become a tradition; the socialist competition for high productivity utilization of mining equipment.

Warmly approving the results of the November (1981) Plenum of the Central Committee of the CPSU and the Sixth Session of the 10th Convocation of the USSR Supreme Soviet, and striving to provide a worthy reception for the 17th USSR Trade Union Congress, we each signed a contract to produce 500,000 tons annually of coal and shale.

The fulfillment of our obligations under the contract will be considered a contribution to the practical implementation of instructions on the best utilization of production reserves and an increase in the efficiency of coal production contained in the speech by Leonid Il'ich Brezhnev at the November (1981) Plenum of the Central Committee of the CPSU. Our successes will be the response to the exceptional concern of the party about improving labor and everyday living conditions of Soviet miners.

We will observe strict economy, be zealously concerned about the utilization of materials and electric power consumption and raising the quality of labor.

We have obligated ourselves to help train our comrades in the competition to achieve higher final work results and share our experience generously with other collectives, and see to it in every way possible that there will be no mine brigades that do not fulfill their planned tasks.

Based on realistic mining-geological conditions, weighing available reserves and possibilities, we established the goal in the competition for each of our brigades and in each section. Adopting high socialist obligations, we decided to give the Motherland about 54 million tons of coal and shale in 1982.

We appeal to collectives of all sections and brigades in coal and shale mines to join the socialist competition to increase the average daily loading at each working stope and to provide maximum output from mining equipment and, on that basis, insure the highest productivity of labor by the opening of the 17th USSR Congress of Trade Unions. The record production indicators achieved at that time at each working place will be made the work norm during all of 1982 -- the 60th Anniversary of the formation of the USSR.

We request that the USSR Ministry of the Coal Industry, the Central Committee of the Trade Union of Coal Industry Workers and the editor of TRUD be our arbiters.

The "500,000 ton" contract for socialist competition in 1982 was signed by the leaders of these collectives in the names of the brigades and sections.

Table 1

Mining Goals

These are the goals of 92 collectives of mining brigades and sections that signed the contract on competing in the second year of the 11th Five-Year Plan period for the production of 500,000 and more tons of coal (shale) at each working stope.

Brigade foreman section chief	Production association, mine	Obligations for 1982 (in thousands of tons)
	DONETSKUGOL'	
A. Polyshchuk	"Trudovskaya"	513
A. Asyutchenko	imeni paper SOTSIALISTICHESKIY DONBASS	533
P. Negrutsa	imeni Zasyad'ko	530
	MAKEYEVUGOL'	
G. Abramov*	imeni 25th Party Congress	500
	KRASNOARMEYSKUGOL'	
V. Ignat'yev	"Krasnolimanskaya"	700
	KRASNODONUGOL'	
A. Kolesnikov	"Molodogvardeyskaya"	700
	ROVEN'KANTRATSIT	
G. Motsak*	imeni Kosmonavtov	530
N. Skrypnik	imeni Frunze	1000
	DOBROPOL'UGOL'	
V. Yerokhin	"Belozerskaya"	500
	SVERDLOVANTRATSIT	
V. Murzenko	"Krasnyy Partizan	670
V. Pinchuk	"Dolzhanskaya-kapital'naya"	508

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*Section chief

Table 1 (continued)

Brigade foreman section chief	Production association, mine	Obligations for 1982 (in thousands of tons)
	UKRZAPADUGOL'	
G. Sirota	No 3 "Velikomostovskaya"	500
	VORKUTAUGOL'	
Yu. Bronnikov	"Severnaya"	685
V. Kabantsev	"Severnaya"	670
P. Yermakov	"Vorgashorskaya"	815
A. Potapov	"Vorgashorskaya"	650
S. Boyko	"Vorgashorskaya"	730
S. Semenov	"Vorgashorskaya"	765
S. Tolkachev	"Vorgashorskaya"	660
G. Yashenkov	"Vorgashorskaya	520
I. Dobrovol'skiy	"Oktyabr'skaya"	703
I. Sorochinskiy	"Oktyabr'skaya"	703
G. Gobedzhishvili	"Komsomol'skaya"	517
N. Fominykh	"Konsomol'skaya"	507
A. Shakulin	"Komsomol'skaya"	530
	INTAUGOL'	
A. Zhaleyko	"Zapadnaya"	550
V. Glagolev	"Zapadnaya"	600
E. Vilimas	"Intinskaya"	563
V. Korotkov	"Intinskaya"	565
	GUKOVUGOL'	
N. Gubin	"Gukovskaya"	500
K. Markelov	imeni 50th Anniversary of October	1000
	ROSTOVUGOL'	
M. Chikh	"Mayskaya"	800
A. Dushchenko	"Glubokaya"	500
A. Shilyakin	"Ayutinskaya"	500
	SEVEROKUZBASSUGOL'	
I. Safronov	"Pervomayskaya"	500

Table 1 (continued)

Bridage foreman section chief	Production association mine	Obligations for 1982 (in thousands of tons)
	LENINSKUGOL'	
V. Zhukov	"Polysayevskaya"	700
N. Yemel'yanov	imeni 7 Noyabra	500
R. Putkov	"Komsomolets"	550
V. Yelagin	"Oktyabr'skaya"	500
A. Zorkin	imeni S. M. Kirov	500
	YUZHKUZBASSUGOL'	
M. Reshetnikov	"Zyryanovskaya"	1000
V. Bovt	"Zyryanovskaya"	600
V. Bardyshev	"Novokuznetskaya"	615
V. Devyatko	"Raspadskaya"	700
P. Frolov	"Raspadskaya"	1000
B. Kulikov	"Raspadskaya"	600
L. Krasnukhin	"Raspadskaya"	600
G. Sukhinin	"Raspadskaya"	600
V. Chushkin	"Alardinskaya"	500
V. Kuznetsov	imeni Lenin	500
V. Vladimirov	"Abashevskaya"	650
N. Chulkin	"Tomskaya"	500
	GIDROUGOL'	
Yu. Ignatov	"Yubileynaya"	500
G. Smirnov	"Yubileynaya"	500
A. Karzhov	"Inskaya"	500
Ye. Drozdetskiy	"Nagornaya"	600
R. Stakheyev	"Nagornaya"	600
A. Nikitin	"Nagornaya"	600
	NOVOMOSKOVSKUGOL'	
A. Titov	"Podmoskovnaya"	520
Yu. Yamov	"Podmoskovnaya"	510
Ye. Boldyrev	"Podmoskovnaya"	510
	CHELYABINSKUGOL'	
N. Kulakov	"Korkinskaya"	500
	KARAGANDAUGOL'	
Yu. Kubaychuk	"Maykudukskaya"	500
A. Zhakupov	"Karagandinskaya"	520

Table 1 (continued)

Bridage foreman Section chief	Production association mine	Obligations for 1982 (in thousands of tons)
	KARAGANDAUGOL' (cont'd)	
N. Zakharov	"Karagandinskaya"	503
A. Romanyuta	"Severnaya"	550
V. Fedorenko	imeni Kostenko	500
Yu. Razlivayev	imeni Kostenko	500
A. Khimin	imeni Kostenko	500
V. Shmakov	imeni Kostenko	500
V. Petrov	imeni Gorbachev	500
V. Belik	imeni Gorbachev	500
A. Nikolayev	imeni 50th Anniversary of Oktyabr'skaya revolyutsiya	600
N. Titov	"Tentekskaya"	512
V. Marchenko	"Mikhaylovskaya"	700
V. Protopopov	"Molodezhnaya"	500
N. Gladkikh	"Shakhtinskaya"	740
V. Nazarov	"Sokurskaya"	500
	ESTONSLANETS	
V. Ivanov	"Akhtme"	554
I. Kyman	"Akhtme"	504
E. Vakht	"Viru"	500
I. Ushakov	"Viru"	500
Kh. Noorlind	"Estoniya"	540
A. Puusenn	"Estoniya"	540
Ya. Pruunes	"Estoniya	625
M. Balychenko	"Estoniya"	625
Kh. Kaarlyp	"Estoniya"	525
A. Peet	"Estoniya"	625
Kh. Kuslap	"Estoniya"	555
E. Paap	"Estoniya"	560
A. Vakhrushev	"Estoniya"	520
	MINTOPPROM RSFSR	
L. Kon'kov*	"Gramoteinskoye"	500
	"Oblkemerovugol'	

In 1981, 422 mine brigades and sections produced 1000 and more tons of fuel per day from working stopes.

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*Section chief

Some 91 leading brigades and sections loaded 500,000 tons per stope and eight collectives produced a million and more tons of fuel per year.

In the first year of the 11th Five-Year Plan period, [illegible] million tons of fuel were produced by brigades and sections whose goal was 500,000 tons a year. This is almost 15 percent of all coal mined underground.

Some 763 million tons of coal and shale must be produced by the country's miners in the second year of the Five-Year Plan.

Petr Yermakov's Collective Wins the TRUD Prize

By a joint decision of the USSR Ministry of the Coal Industry's Board, the Presidium of the Central Committee of the Trade Union of the Coal Industry Workers, as well as the Editorial Board of TRUD, awarded the memorable TRUD prize and a victory diploma in the competition of the "500,000 ton" collectives for 1981 to the collective of the third section of the "Vorgashorskaya" Mine ("Vorkutaugol'" Production Association), headed by Honorable Miner Petr Aleksandrovich Yermakov. The mine where the victors work was awarded the Rotating Red Banner of the Central Committee of the CPSU, the USSR Council of Ministers, the VTsSPS and the Central Committee of the VLKSM.

Last year, the collective of the leading section produced 1,068,000 tons of coal. This is the highest indicator achieved in the competition of the "Contract of Ninety Collectives."

P. Yermakov's section attained the million ton goal for the second year. Today this collective leads in the competition for a worthy reception for the 17th USSR Trade Union Congress. This collective now produces 3000 tons of coal per day.

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KUZBASS COAL EXTRACTION LAGS

Moscow STROITEL'NAYA GAZETA in Russian 22 Jan 82 p 2

[Article by V. Suslov, secretary of the Kemerovskiy obkom of the CPSU: "The Road to Coal"]

[Text] Not by accident is Kuzbass considered the fuel-power base in the eastern part of the country. Every fourth ton of power fuel and every third ton of coking coal are mined at its mines and open pits at present. About thirty thousand consumers use Kuznetsk coal. Miners of the Kemerovskaya Oblast send 43 million tons of coal annually to the European part of the country alone.

According to the directives of the 26th party congress, coal enterprises of the Kemerovskaya Oblast must increase coal extraction in the eighties by 25 percent and attain up to 193 million tons by 1990.

The program outlined is kept at the center of attention of the Kemerovskiy obkom of the CPSU. The efforts of the party, trade union and Komsomol organizations in coal mining enterprises and their subcontractors are mobilized to solve industrial programs. In fact, the road to mining great amounts of coal lies in building the large Taldinskiy, Yerunakovskiy and Karakanskiy open pits and in modernizing the open pits of Bachatskiy and Sibirskiy.

The Taldinskiy open pit alone will produce up to 30 million tons of high quality fuel. The Bachatskiy open pit, after complete modernization, will produce 12 million tons. In view of such scales, you will agree that this is worth working for. Especially since the cost of the coal obtained by strip mining is, as a rule, half of that obtained in underground mines. As far as underground mining is concerned, the course here of modernizing the existing working mines must be taken, it being necessary in modernizing the mines to execute work which sometimes exceeds the volumes of initial construction.

Such an important problem may be solved by a sharp increase in the productivity of labor, mechanization of labor-intensive work and the introduction of new technological solutions and modern equipment. However, until recently, many tunneling processes were not mechanized at Kuzbass and other coal basins.

Scientific research and planning design institutes of the industry created a number of machines for mechanizing mining-tunneling work. However, they either remain as single examples, or are produced in experimental lots. This forces local innovators to create their own models of equipment or accessories that facilitate increased labor productivity and improved safety.

The Kuzniishakhstroy heads the creative search of the basin miners. In particular, there was designed here for the mechanization of drilling when tunneling and deepening mine shafts the SMBU-4m high productivity installation which made possible a simultaneous reduction in the number of drillers and a reduction in the drilling time by half. Of the other valuable developments of the institute that stand out are prefabricated reinforced concrete smooth-wall supports used in 42 kilometers of various drifts under complex geological mining conditions for the first time in Kuzbass as well as in domestic and world practice.

As recommended by the party obkom, Kuzniishakhstroy construction machines were studied in the system of continuous schools of advanced experience and bases of production economics. Recently a scientific-practical conference was held at Kemerovo on increasing the rates of mining and the productivity of labor by using the above-named equipment and technological innovations. The conference evoked great interest of specialists in the industry, and representatives of the Karaganda and Moscow basins participated in it along with the Kuzbass people.

By utilizing skillfully progressive technology and the brigade contract method, leading working collectives of the Kuzbassshakhstroy entered into competition for the assimilation of a million rubles each annually and achieved gratifying results. While previously only the brigade of Sergey Nagornov, Hero of Socialist Labor, coped with such a load, last year the number of "millionaires" increased to five. Ivan Draskov's brigade even conquered the million and a half limit...

Competition for the best quality indicators is popular among mine builders. For this competition, the Kuznetskshakhstroy Trust established for participants a rotating cup imeni Aleksey Shatrov, Hero of Socialist Labor, initiator of accelerated tunneling methods at the Novokuznetsk mines.

In solving responsible problems, the veterans take great care in preparing and training young shifts. The party obkom approved the experience of collective instruction originated at the Novokuznets Mine Tunneling Administration.

At first, noted brigades supervised Komsomol-youth brigades here. Later, a contract on collective instruction was concluded with the newly created Gidrougol' Mine Building Administration in Novokuznets.

According to the contract, the brigades of Heroes of Socialist Labor Sergey Nagornov and Ivan Sizykh, as well as the brigade of Ivan Urbanovich obligated themselves to give their colleagues in the new administration unselfish help in introducing the scientific organization of labor in tunneling and equipping mine shafts, and achieving shock labor rates in tunneling major mining drifts.

The first requirement in increasing coal production in the Kemerovskaya Oblast to the goals set by directive organs is considerable capital expenditures. In the 11th Five-Year Plan alone, they must be 3.45 billion rubles, including more than half for construction installation work. This means increasing the capacity of coal construction trusts from 40 to 100 million rubles and strengthening the subdivisions of the Kuzbasszhilstroy -- the basic contract organization that builds civil engineering facilities.

At the same time, it will be necessary to create a powerful base for the construction industry in the Yerunakovskiy region and other promising regions, and the southern part of the basin.

Local organizations of the Minugleprom [Ministry of the Coal Industry] are obviously not prepared to implement such an intense task; therefore, the USSR Gosplan must consider the question of increasing contractor activity at the coal facilities of the USSR Mintyazhstroy [Ministry of Heavy Industry Construction], the USSR Minstroy [Ministry of Construction] and the USSR Minenergo [Ministry of Power and Electrification] (at present their share does not exceed 10 percent). The USSR Minugleprom [Ministry of the Coal Industry] itself must make maximum appropriations for the creation of additional construction administrations and trusts, and improve the operation of the existing ones radically.

The extremely unsatisfactory management of mine construction is attested to, for example, by the situation at the Kuzbassshakhtoprokhodka Trust. As ahown by the party obkom analysis, about 40 percent of the working time last year was used for secondary operations and machines were idle for 2.5 hours each shaft meter due to interruptions of the supply of concrete. Over half the vertical shafts were built at a speed two-thirds that of the norm. As a result, the trust met the modernization plan of the past five-year plan period at only 10 out of 23 mines.

The reaction of the Kuzbassshakhstroy managers to this alarming trend is very peculiar: instead of mobilizing all efforts to eliminate the causes for the lag, the plans for the volumes of mine capital work by the trust are reduced every year.

The party obkom bureau that considered the work of the Kuzbassshakhtoprokhodka last June seriously criticized the USSR Minugleprom for not devoting proper attention to its contractor organizations, and tolerates the diffusion of forces and money. The same Kuzbassshakhtoprokhodka Trust builds up to 1500 facilities simultaneously making it possible to keep not over eight workers at each of them.

The ministry gives little help to the shaft builders of Kemerovskaya Oblast with high unit capacity equipment and does not create special contractor subdividions like those that acquitted themselves well in the Donbass (for example, the Spetsshakhtoburenlye Trust).

The recently adopted directives of the Central Committee of the CPSU and the USSR Council of Ministers on accelerating the reequipment of coal mines, and additional measures on accelerating the development of strip mining of coal in 1981-1990, stress the importance of the Kuznetsk basin development. This obliges the USSR Minugleprom managers to change their attitudes radically toward the most acute problems of the mine builders of western Siberia.

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GRUZUGOL' PRODUCTION DIFFICULTIES

Tbilisi ZARYA VOSTOKA in Russian 17 Feb 82 p 3

[Article by B. Sanikidze, general director of the "Gruzugol'" Production Association: "Prospects of Growth"]

> [Text] Favorable conditions are shaping up at the"Gruzugol'" enterprises and it is important now that all organizations, especially the construction ones, give the miners efficient help. The best time in the development of the "Gruzugol'" was in the fifties when the collective of the production association achieved record results. Then came a prolonged drop which continues to this day.

This was due mainly to the depletion of some large mines. In the last 20 years, work stopped completely at the Gelatskoye deposit and two mines with an annual production of 200,000 tones each were closed at the Tkvarchel'skoye deposit. The drop in demand for lignite made it necessary to cease development at three mines of the Akhaltsikhskoye deposit.

This was generally expected. But it was planned to make up the reduction in their production by putting new mines at the Tkibuli-Shaorskoye deposit into operation. For this purpose, construction began here of mines -- the "Vostochnaya-2" and the "Zapadnaya-2." According to estimated data, each of them was supposed to produce up to 600,000 tons of fuel annually.

However, these estimates, as they say, remained on paper. The construction of these mines has not been completed to this day. So far they are operating at only 33 percent of their planned capacity.

Such a disproportionate closing of old mines and putting new ones into operation was due mainly to the disruption of the capital construction plan at the "Gruzugol'" facilities by the construction organizations of the Republic Minstroy [Ministry of Construction]. Year after year the builders fail to assimilate capital investments fully.

It seems that the name of our general contractor -- "Gruzshakhstroy" Trust No 7 is only a formality because last year its share of coal industry facilities in the total volume of construction installation work was only 28 percent. Proper steps were not taken in the trust even after the directive organs of the republic, having thoroughly studied the situation in the association, instructed the managers of the republic ministries and departments to help "Gruzugol'" in every possible way.

Not only do objective factors reflect negatively on the work of the association. We also have, so to speak, our internal problems. It is the question of cadres, questions of improving the organization of labor, maximal utilization of internal reserves and many others. All these problems must be solved comprehensively. It is precisely for this purpose that our specialists, with the participation of representatives of labor collectives, developed a plan of measures whose implementation will make it possible for Georgian miners to attain the goals set for the second year of the five-year plan period.

Plans were also worked up for comprehensive social-economic development of the association for the period up to 1990. In the 11th Five-Year Plan period, an increase of 13 percent is specified in coal production and using up capital investments of 280 percent.

We are already translating these plans into action. Mine reequipment is proceeding at full speed. As an example, the installation of a flexible roof and heading machine started at the mine imeni V. I. Lenin in Tkibuli and a belt conveyor was introduced at the Tkvarchel'skiye mines.

We were able to achieve a turning point in securing manpower. Much has already been done in this direction. New forms and methods of bonus payments were introduced. The average wages of basic trades were increased by 30 percent. The housing problem is being solved. After explanatory work, many miners concluded contracts for individual housing construction. They were given loans, 80 percent of which will be paid off by the government.

Measures were renewed to attract demobilized soldiers from the Soviet army to the association enterprises. We did not forget draftees either. Members of brigades who were drafted receive small monthly sums deposited in savings accounts opened in their names. Thereby they feel a moral obligation to the collective and perceive the support of their comrades. It should be noted that this initiative of collectives of our brigades was supported by the management of the association.

Regular bus runs between Tkibuli and nearby villages were organized making it possible to attract villagers to work at the mines without furnishing them with housing. The number of engineers and technicians in our enterprises has increased. Last year all graduates of the GPI [Georgian Polytechnic Institute imeni V. I. Lenin] Mining Department were sent to us. All conditions for successful activity were created for them. Moreover, two groups were organized for the preparatory department of the GPI at Tkibuli.

These and many other measures facilitated the stabilization of the work of our collective and made it possible to achieve a certain turning point.

However, we still have no reason for complacency. Changes for the better are noted, but we still have many problems. They must be solved more rapidly. It is again necessary to return to the question of accelerating the rates of construction of new production capacities. We learned the lessons of the recent past well. Therefore, it is necessary to look soberly at things. This is the reality. A time will come and coal reserves at most of the Tkvarchel'skoye deposit mines will be depleted. The "Shaorskaya-tsentral'naya" Mine with a rated capacity of 1.5 million tons annually must replace the losses. Therefore, by that time, it must attain the parameters set.

In this and the 12th Five-Year Plan periods, it is necessary to reequip the existing mines fully. Mechanized complexes must be introduced.

We have attracted to this problem specialists in scientific and research institutes who carry out research for finishing off the technological parameters of the new systems as applied to the geological mining conditions of our deposits.

"Gruzugol'" also faces serious problems in improving housing and everyday living conditions of the miners and their families. Today, there is a waiting list of over 4000 people for apartments. We have the money for housing construction and, therefore, using the allotted capital investments for housing construction is one of our foremost problems.

In the future, we plan to build a satellite city on flat land several kilometers from Tkibuli where, by building multistory buildings and reducing the amount of earthwork,it is planned to reduce construction costs of one square meter of housing by 60 rubles.

The leadership of the republic shows great concern about miners and helps us in every way to solve urgent problems. We are aware of this support constantly and are doing everything possible to respond to it by shock labor.

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COAL PROBLEMS IN KANSKO-ACHINSK COMPLEX

Moscow PRAVDA in Russian 16 Feb 82 p 3

[Article by academicians L. Melen'yev, M. Styrikovich and A. Sheyndlin: "Another Time about KATEK [Kansko-Achinsk Fuel-Power Complex]"]

[Text] Among the basic directions of the development of the national economy in the 11th Five-Year Plan period and the period up to 1990 is the provision of the necessary level of electrical power and fuel supply to the country. One of the key places for solving this essentially state problem is assigned to the Kansko-Achinsk coal basin. The 11th Five-Year Plan calls for an increase of 3.5 times in capital investments for the development of the basin.

This is a unique deposit. Its geological reserves are estimated at 600 billion tons and what is important, slightly less than a quarter of them can be strip mined which is the most economical method. Here were explored gently sloping seams 12 to 60 meters thick lying close to the surface. This determines the comparatively low cost of the coal.

It is necessary, however, to note that the local lignite has a comparatively low calorific value and a high moisture content -- in the order of 50 percent. For this reason it should not be transported over long distances and should be used preferably as close as possible to its source where it is mined. This predetermines to a great extent the approach to the formation of the Kansko-Achinsk Fuel Power Complex (KATEK).

We will not touch upon a number of mining problems at the KATEK. Being power engineers we will dwell on the comprehensive and complex problems of its optimal utilization.

Three main methods were determined: burning locally to produce electrical power; processing into an enriched, to a considerable extent, smokeless solid fuel; and obtaining artificial liquid fuel. All these methods should be developed at the KATEK in various combinations, depending upon the scientific-technical preparation of the engineering solutions.

Thus, at present, the best of the methods studied brought to the stage of working planning is burning run-of-the-mine Kansko-Achinsk coal at large electrical power plants. This road to the development of the KATEK for the next 10 years is apparently the most realistic. We consider substantiated the planned accelerated construction of several large electrical power plants with capacities of up to 6.4 million kilowatts each with steam turbine units of 800 megawatts each. Of course, even on this seemingly clear road there are many complications. They are due, basically, to the ash properties of this coal that has inhomogeneous physio-chemical characteristics in individual deposits which complicates the operation of boiler units with capacities of 2600 tons of steam per hour. A boiler unit of such productivity is being created in Podol'sk at the Plant imeni Ordzhonikdze. At the same time, the NPO [Scientific Production Association] TsKTI [Central Scientific Research and Planning Design Institute imeni I. I. Polzunov] of the USSR Minenergomash [Ministry of Power Machine Building], in cooperation with other organizations, are involved in improving boiler units of this and other types.

The next in degree of scientific technological studies made is the so-called power-technological utilization of the Kansko-Achinsk coal. Research in this direction is being done in the State Power Institute of the USSR Minenergo [Ministry of Power and Electrification]. The initial idea of the method consists of the preliminary so-called accelerated pyrolysis (thermal decomposition) of pulverized coal and obtaining semicoke, tar and some amount of fuel gases. An ETKh-175 power technological installation with a productivity of 175 tons of coal per hour is being built at the Krasnoyarskaya TETs No 1 for verification of this method. Regrettably, the schedules for putting it in operation were disrupted systematically and serious measures should be taken to put it in operation in the very near future. Besides, the ETKh-175 complex under construction does not provide for the utilization of the tar for further reprocessing, even for tarring the semicoke and preparing briquets -- a good smokeless fuel that can be used for home consumption primarily in rural farming regions of Siberia. The preparation for the start-up of the ETKh-175 installation in the full arrangement with the utilization of tar, including its use to produce briquets, must be accelerated so that the experience of its operation could be utilized in building more powerful installations of such a type.

Still another possible method for enriching the Kansko-Achinsk coal consists of its relatively low temperature of thermal processing. An experimental installation with a productivity of 100 tons per hour is being built at the Irsha-Borodinskiy strip mine of the "Krasnoyarskugol'" Association under the guidance of the Minugleprom Fuel Institute.

But the most important and promising direction in using Kansko-Achinsk coal is to obtain artificial liquid fuel, especially motor vehicle gas. This possibility is becoming more and more attractive as the reserves of inexpensive natural hydrocarbon fuels are being depleted.

Our scientists made a considerable contribution in the past to the science of converting coals into liquid fuels and gas. Regrettably, the research in the last 20 to 25 years was done only on a laboratory scale with small forces, and only in a few institutes. Yet, today, it is already clear that it is necessary to prepare, scientifically and technologically, for the creation of a large sector of the national economy to obtain artificial liquid fuels from coal.

True, the importance of this problem was also underestimated abroad and only in the last decade, especially since 1973-1974, has broad research and experimental design work developed widely. Their results indicate that we are talking about a very complex matter which will require many years to solve and large expenditures. Programs are being implemented in the United States and the FRG on creating processes to obtain synthetic fuel from coal. Various versions for liquefying and the gasification of coal were checked in the United States on experimental installations with productivities of 25 to 50 tons per day. Three semiindustrial installations (with capacities of 250 to 600 tons per day) in the United States and one (for 200 tons per day) in the FRG are being built.

Artificial liquid fuels from coal can be obtained by two basic methods. First, by the gasification of coal when a so-called gas-synthesis (a mixture of carbon monoxide and hydrogen) is produced, used further in the synthesis of a mixture of hydrocarbons similar to a certain type of motor vehicle fuel. Secondly, by the hydrogenation of coal when, in the presence of catalysts, it interacts with hydrogen under presssures of 100 to 300 atmospheres and temperatures of about 500 degrees centigrade. As a result, a part of the organic mass of the coal is converted into a product close in its properties to raw petroleum. With a hard residue, it can be utilized to obtain hydrogen.

Since the cost of the initial raw material makes up an essential share of the cost of artificial liquid fuels, it is obvious that when using the inexpensive Kansko-Achinsk coal for this purpose, the economic indicators will be found to be especially favorable. All this determines the interest in the creation of a synthetic liquid fuel industry on the basis of the KATEK.

It is important here to emphasize the following. Although the idea of producing liquid fuels from coal is not new, the technological processes proposed 40 or more years ago are not good enough in the achieved productivity of the equipment and in their economic indicators. Therefore, the problem is to develop intensive and economical methods.

In particular, speaking of gasification, it is necessary to create a gasifier with a productivity of several hundreds of thousands of normal cubic meters of gas per hour and with a high power efficiency. For this it will be necessary to solve complex problems of gasification under pressure, removal of liquid slags, and cleaning gases. The following synthesis of the fuel from the gasification products assumes the development of efficient catalysts that can be used repeatedly.

The technical economic efficiency of the hydrogenation installations depends on successful research methods for separating the ash part from the liquid products, increasing the selectivity and productivity of the process, creating inexpensive catalysts and various apparatus. All these and many other technical difficulties may be finally overcome only in the course of experiments on fairly large experimental -industrial installations.

Scientific conferences held in recent times, in particular on KATEK problems in Krasnoyarsk in April 1981, discussions in divisions of the USSR Academy of Sciences and the USSR State Committee on Science and Technology indicated that Soviet scientists have accumulated a considerable theoretical stockpile and are developing very promising ideas in the area of utilizing and reprocessing coal, but their verification on experimental installations is noticeably lagging. In this connection, we would like to call attention to the mandatory necessity of the clear-cut implementation of the directives of the well-known decree of the Central Committee of the CPSU and the USSR Council of Ministers on the Kansko-Achinsk basin, especially with regard to building experimental industrial installations.

The urgency and scale of the problem of utilizing Kansko-Achinsk basin coal for power in the country attracts the interest of a large number of scientific collectives, production associations and the public. Of great help in solving the concrete problems is the press by publishing articles on the achievements of Soviet scientists, engineers and production people pointed toward eliminating existing shortcomings.

With this background, the appearance of an article by V. Prokushev "KATEK Coal" (PRAVDA, 13 Dec 1981) was regrettable. It is difficult to agree with the treatment of a number of important problems related to the use of KATEK coals in this article.

In particular, objection can be made to the claim that the method of obtaining electrical power by burning coal in furnaces is outdated, that the future belongs to MGD [Magnetohydrodynamic Generators] and, therefore, only the first two Berezovskaya GRES will operate with boilers, while the MGD generator will be the heart of the third.

We ourselves are the initiators of work in the magnetohydrodynamic conversion of energy in our country and are its fervent supporters. But such claims may only discredit an important and necessary idea. Actually, the use of MGD installations at the Kansko-Achinsk is far from being obvious due to the cheap coal. MGD installations are more promising, for example, for Kuznetsk coal.

We also consider unsubstantiated the doubts concerning the advisability of creating a large scientific center supposedly especially to study the KATEK problems in the Moscow region. Apparently this was based on the decision of the USSR Academy of Sciences to create a division of the High Temperatures Institute of the USSR Academy of Sciences near Shatura. Actually, in this future division it is planned to carry out fundamental research and experimental work on a wide group of power problems related to obtaining liquid fuels from various mineral fuels of the country, with increased recoverability of viscous petroleum from strata by thermal methods and an entire series of other promising directions in power engineering.

Returning to the KATEK, we will note that in every possible way it is necessary to form scientific collectives oriented toward the solution of problems related to this complex. In fact, their formation will take 5 to 10 years. Such collectives should, if possible, be located near the new future sector of the industrial utilization of the Kansko-Achinsk coal, i.e., in Siberia. Subdivisions are especially needed which are aimed at the solution of serious ecological problems which arise unavoidably when building such grandiose facilities, related basically to the possible increase in air pollution. This will require the carrying out of systematic investigations spanning natural and social-economic conditions in the KanskO-Achinsk region and its interaction with the entire fuel-power complex of the USSR.

Obtaining synthetic motor vehicle fuels from coal is so important for our country that we consider it timely to propose a study of the question of creating an interdepartmental organ, responsible for the organization of broad scientific research and experimental-design work, its financing and providing it with resources. Initiators of the preparation of substantiated proposals could, in our opinion, in the very near future, be the USSR Academy of Sciences and the USSR State Committee on Science and Technology along with a number of interested ministries.

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FUELS

OFFSHORE OIL-DRILLING PLATFORM DESCRIBED

Baku VYSHKA in Russian 10 Feb 82 p 1

[Article by A. Gol'denberg, correspondent of AzerINFORM "'Shel'f-1' on Duty"]

[Text] Imeni 28 April.

The field imeni 28 April has again confirmed the reputation of a unique test site where the latest samples of drilling equipment and unique hydraulic engineering structure are tested and introduced into production. On 8 February, "escorted" by the marine tugs "Kura," "Samur," "Professor Tagiyev" and "Dnestr" the first domestic semisubmergible unit "Shel'f-1" arrived here. It will participate in storming the storehouses of "black gold" which occur on the deep-sea section of the Caspian.

In its time the first stationary base was installed in the Caspian Sea in this region at a depth of 84.5 m. The wells that were drilled into it proclaimed with powerful gushers the discovery of a promising field of liquid fuel.

The great depths of the sea required basically new equipment for drilling the wells, and the country's first stationary base began to be built at "28 April". It is installed on a water area with depth of 100 m.

However, according to the obtained data, the basic fuel riches are hidden here under an even thicker mass of sea. Only semisubmersible drilling units can confirm the accuracy of these predictions. Their sphere of activity covers a water area up to 200 m deep. "Kaspmorneft'" which was manufactured abroad became the first such floating borehole. Now "Shel'f-1" has occupied a position indicated by the geologists not far from it.

Located at the point of the imminent drilling, it does not lower to the sea bottom giant extension-type steel "legs," like the self-lifting units do, but submerges part of its frame in the sea, attached to the ground by eight anchors. Together with two metal pontoons on which the unit rests, these anchors guarantee stable position of the floating borehole. A special compensator eliminates fluctuations in the waves which makes it possible to operate even in a 6-point storm, with winds reaching 18 m per second.

The Hand of Fraternal Help

In the year of the 60th anniversary of formation of the USSR, one somehow has a special feeling for the help of the fraternal republics in developing the oil resources of the Caspian. The birth of "Shel'f-1" is a graphic testimony to this. Twenty scientific research and planning institutes of the country participated in its creation. The unit was built at the wharf of the Astrakhan shipbuilding association. It was supplied with drilling equipment by the Sverdlovsk "Uralmashzavod." Other equipment, 63-ton deck cranes like no others that have been installed on ships, instruments, electrical and other equipment were supplied for "Shel'f" by many enterprises of the country.

The 58-meter derrick installed on a floating borehole for the first time has a welded structure. This significantly improved its strength. Three-cylinder pumps which are distinguished by high output and increased operating reliability are also an innovation.

Automatics on the "Shel'f-1" has been a true assistant for the tunnelers of the depths. Using automatics, one man controls the lowering-lifting operations from a panel, the most labor-intensive work on a borehole. A special automatic system of transport and storage of bulk materials for the drilling solution excludes the use of manual labor for fulfilling this operation, promotes prevention of losses of raw material and reagents, and protects the environment from pollution.

Above the 130-Meter Water Mass

The floating borehole was equipped with an underwater head complex of original design and has a system of underwater television. Helicopters with a new shift of drillers will land on a specially equipped platform. There are comfortable cabins and numerous services for the drillers.

The depth of the first well which the crew of "Shel'f-1" headed by young engineer Oktay Murshudli has to drill is 4,500 m. For the first time in the Caspian, the drilling tool will enter the depths through a 130-meter water mass which until recently was considered inaccessible to the mineral explorers.

Well No. 11 which "Shel'f-1" will lay will become a unique scientific research laboratory in which final tests of the assemblies and mechanisms of the unit will be made. Part of the tests have been done at the field imeni Fuad Samedov, from which "Shel'f-1" came to the drilling site. The anchor devices were tested on the way. Now come the chief tests, tunneling of the first well. "Shel'f-1" is the first-born of a whole series of floating boreholes. The fate of subsequent units depends on how it behaves. All the data on the operation of the equipment will be carefully collected, recorded and generalized to depths of 3,000 m. The obtained technical characteristics and recommendations will help the Astrakhan ship builders to make the next units.

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AZERBAIJAN PLANT FOR OFFSHORE DRILLING PLATFORMS UNDER CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 17 Jan 82 p 2

[Article: "Factory and the Sea"]

> [Text] "Construct a plant of deep-sea platforms in the Azerbaijan SSR."
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> From the Main Directions for Economic and Social Development of the USSR for 1981-1985 and for the Period to 1990.

The USSR Ministry of Installation and Special Construction Work acts as the customer of this enterprise. At the request of our outside correspondent L. Aleynik, Deputy Minister of installation and special construction work of the USSR V. Bryunin discusses how the decision of the 26th Party Congress for construction of a plant of deep-sea platforms is being fulfilled.

The Baku plant of deep-sea platforms will become the world's largest enterprise for manufacturing large platforms from which wells will be drilled into the shelf waters of the Caspian to a depth of up to 200 m. I do not err if I say that this construction site in Azerbaijan is today one of the most important, and perhaps the most expensive: its estimated cost is over R 3 billion.

Imagine this picture: an enormous 12,000 ton steel pyramid has been assembled on the building slip of the plant. It is moved onto the heavy-freight unique dump truck barge and transported to the open sea. There, tens and perhaps hundreds of miles from the shores the barge dumps its load above the explored field. The support block of the platform, after penetrating the mass of water stands on the ground. Powerful pilings up to 120 meters long securely "sew" the platform to the ground, and the installers rapidly construct an autonomous city of oil and gas extractors from ready-made modules on the broad deck projecting above the sea swells.

Everything necessary for life of the workers far from home, at sea, will be here: comfortable living areas, baths, cafeteria, movie theatre and small sports complex. When two large drilling derricks stand at full height next to the helicopter platform above the deck, drilling will begin. Twenty-four wells can be drilled from one platform to a depth of 5 and 6 kilometers.

The plant, the chief enterprise of Glavmorstal'konstruktsiya [Main Administration for Off-shore Steel Structures] of the USSR Ministry of Installation and Special Construction Work will manufacture four of these platforms per year. For the first time in the country production has been set up here of pipes up to 3.5 m in diameter with wall thickness up to 15 cm for support parts of the platforms, as well as large-sized pipe assemblies and elements which require absolute accuracy of manufacture and thermal treatment. The shops and frameworks of the plant cover 125 hectares on the shore of the Caspian next to the future city of factory workers, Primorskiy. The complex includes the seaport under construction with water area of 80 hectares deep approach canal 5 kilometers long.

Started in 1979, the plant has already acquired basic features. The building of the main framework which unites several large shops has been constructed. Work in the water area of the port is going at full speed. Piers have been erected here and the bottom has been deepened. In the first phase alone it is necessary to fulfill construction-installation work totaling over R 180 million.

However, if one takes into consideration that its start-up must take place in 1983, it is impossible not to see that with current rates this task will not be coped with on schedule. The general contractors are primarily lagging the subdivisions of the Azerbaijan SSSR Ministry of Industrial Construction and the Glavbakstroy [Main Administration for Baku Construction]. They have a shortage of skilled workers and engineering-technical workers, and interruptions in material supplies. Only half of the precast reinforced concrete ordered according to the plan has been supplied to the construction site. The builders have not yet begun installing the roof on the main housing, and have not started foundations under the production equipment which is already arriving, and under the assembly of the frame for the deck shop.

Glazing of the windows and installation of the roof have not yet begun at the block of auxiliary shops in which manufacture of nonstandardized equipment has been stipulated from the second half year. The cafeteria for 530 places has not yet been finished for a year. The situation in housing construction is poor: Glavbakstroy has not increased the number of workers, and has not concentrated the necessary number of mechanisms in Primorsk, as a consequence of which the plan is not being fulfilled.

At the same time this construction site has been approved as a representative model. The USSR Ministry of Installation and Special Construction Work, the USSR Ministry of Industrial Construction and Ministry of Transport Construction recently approved an important document which obliges all: "Organizational-Technical Measures for Implementing the Model-Representative Construction of the Plant of Deep-Sea Platforms." It reveals all the "painful spots" of our construction site, and defines specific ways of curing and specific executors.

We are confident that in the near future things will become better. A construction headquarters has been set up, and a council of brigade foremen will soon be operating. It has been decided to adopt the focal method of control. Plans for production of work are being worked out at the current level.

An ever greater number of working collectives is beginning to work on the method of the brigade contracts. It is an important task to set up an efficient and comprehensive competition among the subcontractors on the principle "Worker Relay Race." We are trying to make the construction site a real model.

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BRIEFS

DONETSK PRODUCTION -- Workers of 20 mining and 20 tunneling brigades of Donetsk, competing for meeting the 60th Anniversary of the formation of the USSR honorably, obligated themselves to complete the plan for two years of the five-year plan by the 65th anniversary of the Great October, mine 5 million 192,000 tons of coal, 273,000 tons of which are above the set program. The tone of the competition for fulfilling the adopted socialist obligations is set by brigades headed by Heroes of Socialist Labor P. Negrutsey, A. Asyutchenko and A. Polishchuk from mines imeni Zasyad'ko, imeni newspaper SOTSIALISTICHESKIY DONBASS and "Trudovskaya," where the loading at working face stopes exceeds over 1000 tons of fuel per day. Other collectives are also coping successfully with their set tasks. It is interesting to note that the production innovators adopted the slogan, "Not one laggard beside you." They help 10 mining brigades and 10 tunneling brigades to improve the organization of labor in order to make them leading ones [By G. Dorofeyev] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 30 Jan 82 p 1] 2291

LIFE OF MINE PROLONGED -- Closing a depleted coal field did not reduce the rate of operation of the mine imeni V. I. Lenin -- one of the oldest in the "Karagandugol'" Association. To make up for the usual losses in such a situation, the timely introduction of new underground capacities rated at an annual yield of 200,000 tons of coking fuel helped. All operations on expanding the underground facilities were fulfilled despite the high presence of gas in the seams. Their preparation began at the end of the past five-year plan period when depletion of old coal fields started to be felt. The enterprise assigned specialists from all mining and tunneling sections to help the mine builders. While the builders sunk additional vertical shafts 600 meters deep and equipped them with lifting-ventilating equipment, the mining "landing party" assimilated the deep gallery directly. The changeover to the new coal-bearing field specified by the reconstruction plan of the enterprise, made it possible not only to hold today's positions. The miners will also be able to increase the rate of production by almost a third and produce over three million tons of fuel in the last year of the five-year plan period. [By KazTAG] [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 4 Feb 82 p 3] 2291

COAL PRODUCTION WILL INCREASE -- Article "How the mine was curtailed..." (PRAVDA UKRAINY, 24 Oct 81) spoke of the unsatisfactory work of the "Sukhodol'skaya-Vostochnaya, put in operation in 1980 by the "Krasnodonugol'" Association and the "Voroshilovgradshakhtstroy" Combine. At its board meeting, the USSR Minugleprom [Ministry of the Coal Industry] considered the progress of construction and the causes that hindered the normal operation of the mine. The customer and the contractor were instructed to prepare, together with the "Yuzhgiproshakht" Institute, measures for 1982 to reduce schedules for driving mining drifts at the 917 meter level and to prepare new longwalls in the I1-3 seam, as well as to create conditions for the stable operation of tunneling brigades. Such measures have now been developed. They call for a reduction in unproductive working time losses in tunneling brigades, providing them with materials and tunneling equipment and improving labor discipline and the organization of labor in the brigades. The implementation of the measures outlined will remove the shortcomings and insure normal operation of the "Sukhodol'skaya-Vostochnaya" Mine. This information was given to the editor by Ye. A. Lopukhin, First Deputy Minister of the UkSSR Ugleprom. [Text] [Kiev PRAVDA UKRAINY in Russian 5 Jan 82 p 2] 2291

NEW MINING MACHINE BEING INSTALLED -- A powerful rotary machine will accelerate the construction of the Berezovskiy-1 strip mine, an important facility of the Kansko-Achinskiy fuel-power complex [KATEK]. The assembly of its units was started today by installers. This machine, which will process 5250 tons of rocks per hour, will uncover seams needed to start the first stage of the enterprise. In 1984, coal from the strip mine will be sent to the Nazarovskaya Thermal Plant and the Berezovskaya GRES-1, the first capacities of which are planned to be released for operation by that time. In this five-year plan period, the KATEK builders must implement twice as much work as in the previous one. [Sharypovo, Krasnoyarskiy Kray] [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 23 Jan 81 p 1] 2291

NEW MINING EQUIPMENT -- The KMD-72 high productivity complex for mining coal in steep seams without workers preset at the stope is being used at the imeni Izotov of the "Artemugol'" Association in Gorlovka. Impressive results were obtained in a very few days: production in some periods exceeded 100 tons per hour. A new 2-ANShCh tunneling machine, tested at the "Yenakeyevskaya" mine of the "Ordzhonikidzeugol'" Association, was used to finish off steep seams. These machines were designed by the collective of the "Dongiprouglemash" Institute and were rapidly manufactured by the Gorlovskaya Machine Building Plant imeni Kirov. In the 11th Five-Year Plan period, the Kirov workers decided to give miners 6742 coal combines, 474 planing installations and 72 million rubles worth of spare parts for them. Keeping their word will help expand production capacities, modernize equipment and improve the technological process. [By N. Mel'nikov] [Text] [Kiev PRAVDA UKRAINY in Russian 31 Jan 82 p 3] 2291

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